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ABSTRACT

This document presents a historical curricular analysis, reviews current curricular research, and offers suggestions for future curricular research in vocational education. It focuses exclusively on the K-12 public school. The first section, a review of research on the development of vocational education as a curricular category, traces each of the major subfields of vocational education as well as the history of vocational education as a whole from their beginnings to about the mid-1970s. The second section, a review of current curricular research in the field, focuses on the period from the mid-1970s to the present. The review shows a considerable increase in attention to vocational education as an integrated instructional system, side by side with the attention given to specific subfields during the 1980s, and a shift in focus to the relationship of vocational education to the rest of the educational system in purposes and curriculum. Both sections show that, although the curricular research is extensive and disciplined, it is in large part still narrowly focused on technical competence, lacking in an overall conceptual framework, and heavily reliant on a single approach to curriculum development. The final section suggests areas for further research, treating each in one or two paragraphs. The areas include: general versus specific education, higher order thinking, basic skills, integration, keeping up to date, articulation, transition from school to work and family life, vocational education's role as change agent, vocational education and at-risk students, and state versus local curriculum content. A list of 325 references is appended. (TLB)

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VOCATIONAL EDUCATION

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The evolution of the K–12 curriculum in vocational education from the 18th century to the present mirrors the dramatic shifts experienced by the larger American society as it moved from agricultural beginnings through the Industrial Revolution and into the contemporary electronic and global "Information Age." These shifts in socioeconomic conditions were accompanied by major changes in the demands of work and family roles and responsibilities. Vocational education's focus on preparation for dealing effectively with the practical problems of work and family has challenged its subject matter to be under continual development and renewal in order to be relevant to the needs of this changing society and make best use of knowledge developed from research and practice. While all of education prepares for work and family responsibilities in some measure, directedness toward learning that enhances effectiveness in addressing work and family responsibilities is a unique contribution and challenging mission for vocational education in the K–12 school curriculum.

This chapter presents a historical curricular analysis, reviews current curricular research, and offers suggestions for future curricular research in vocational education. The analysis will treat each of the major subfields separately, as well as vocational education as a whole. While vocational education is practiced extensively in many settings beyond the K–12 public school (i.e., postsecondary institutions, workplaces, community-based organizations), this chapter, in keeping with the rest of this *Handbook*, focuses exclusively on the K–12 public school. The concept of curriculum can be used very broadly to include the subject matter to be taught, who is taught, how it is taught, and how well it is taught (Kliebard 1989); however, in this chapter the focus is primarily on the first of these components—the subject matter to be taught.

DEVELOPMENT OF VOCATIONAL EDUCATION AS A CURRICULAR CATEGORY

As a curricular category, vocational education emerged after the Smith-Hughes Act of 1917, encompassing several separate and definable areas of subject matter (i.e., agriculture, business, home economics, industrial, and marketing education). Many of these subfields of vocational education existed in some form in the secondary school prior to their recognition as part of vocational education. Often the subfields had aims in addition to specific directedness toward preparation for work and family responsibilities. Even today, vocational education as a curricular category is most often taught through these subfields rather than as a fully integrated and cohesive subject.

This section on the historical development of vocational education traces each of the subfields and vocational education as a whole from their beginnings to about the mid-1970s. The challenge of keeping abreast of the shifting nature of the American society, and subsequently work and family responsibilities, over two centuries is readily appar-

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ent in the issues and changes in curriculum for vocational education during this time.

Agricultural Education

Promotion of agricultural education in the United States can be traced back to the first society for support of agriculture (the Philadelphia Society for the Promotion of Agriculture), organized in Philadelphia in 1785, with membership including George Washington and Benjamin Franklin. A 1794 committee report of the society provided several alternatives for advancing agricultural education for youth and adults (Stimson and Lathrop 1942). The early history of the development of agricultural education from that date, long before federal legislation for vocational education, is a state-by-state history, with descriptors including "vocational and nonvocational agriculture," "polytechnical education," "education in agriculture," "academic agriculture," "agriculture science," "agriculture of less than college grade," "agriculture clubs," "agriculture academies and schools," "'black' agriculture," and "agricultural extension."

More formal and consistent agricultural education in the secondary schools of the United States dates back to 1862, beginning with high school offerings in land grant colleges and, later, with the development of separate agricultural high schools in several states (True 1929). According to Moore (1985),

> In the 1860s, remedial type agriculture courses were being taught in colleges to prepare students for college-level agriculture courses. This led to a need for an agricultural curriculum for high school students. There was a need to prepare students in high schools for college agriculture courses. (8)

The U.S. Department of Agriculture supported a Committee on Methods of Teaching Agriculture, which developed some basic guidelines for high school study of agriculture during this early period. Topics suggested for study were as follows (Office of Experiment Stations 1902, 5):

Agronomy—climate, soils, fertilizer, botany, varieties, culture, harvesting, preservation, uses, and enemies of farm crops.
Zootechny—theory and practice in animal production, breeding, feeding, hygiene, and management of farm animals.
Dairying—the principles and methods in the handling and sale of milk for consumption and in the making of butter and cheese.
Rural engineering—practices and methods of laying out farms and construction and use of farm buildings, systems for water supply, irrigation, drainage, sewage, roads, and machinery.
Rural economy—history of agriculture, capital, labor systems, costs of production, marketing, records, accounts, and so on, as related to farm management.

The Department of Agriculture, through its Office of Experiment Stations, published a section on secondary agricultural education in their annual reports and a series of special publications during the early 1900s. Titles of special reports included: *The American System of Agricultural Education, A Secondary Course in Agronomy and in Animal Husbandry, Training Courses for Teachers of Agriculture, Applications of Chemistry to Agriculture, Community Work in Rural High Schools,* and *Home Projects in Secondary Agriculture* (True 1929, 330).

The Department urged that collegiate and secondary curriculums be distinguished, that special agricultural high schools be replicated across the country, and that agricultural education be introduced into public high schools, especially in rural communities. Efforts were made to show how agricultural study could be introduced into high schools without disrupting existing school studies—for example, by substituting study of agriculture for some study of Latin or offering agriculture as an elective. The content of the Department of Agriculture's reports reveals concern about agricultural study as general and vocational education, articulation of secondary and collegiate study, and needed preparation of high school agriculture teachers. Experiment station bulletins were a major source of curriculum materials for agriculture teachers during this time (Moore 1987).

The "home project" concept (more recently called the supervised occupational experience) was introduced as an important part of the agricultural education curriculum by Rufus Stimson during this time (Boone, Doerfert, and Elliot 1987). Stimson was hired as the first director of the Smith's Agricultural School at Northampton, Massachusetts, in 1908. He wanted students' study to include a sharp focus on farming problems they were facing on their own home farms. According to Boone, Doerfert, and Elliot (1987), Stimson drew his ideas for the project method from his study under William James at Harvard University and from the thinking of Herbert Spencer.

The U.S. Bureau of Education was also promoting the teaching of agriculture in secondary schools during the period 1900–1915. Among its publications relating to secondary-level agricultural education during the period 1912 to 1917 were reports dealing with topics such as agricultural education in secondary schools, agricultural instruction in high schools, and agricultural teaching. From 1900 to 1915, a large number of high schools across the country introduced instruction in agriculture. A U.S. Bureau of Education survey for the school year 1915–1916 showed 3,675 institutions offering secondary instruction in agriculture, largely in public high schools, and involving about 73,000 students (True 1929, 355–356).

Following passage of the Smith-Hughes Act, also known as the National Vocational Education Act, in 1917 agricultural education began to undergo some major changes. As summarized by Moore (1985), the two major curricular changes that occurred in the 1920s were (1) the use of occupational analysis as a basis for curriculum development and (2) a cross-sectional approach to organizing the curriculum. Prior to the 1920s the curriculum for high school agricultural education was patterned after the college-level curriculum, with little attention to students or the ways in which the learning was to be used. Support for basing curricular content on detailed analysis of agricultural production occupations also came from Rufus W. Stimson (1922), who had progressed to state supervisor of agriculture in Massachusetts to become a recognized national leader in the field of agricultural education; and W. W. Charters (1923), a curriculum expert whose book *Curriculum Construction* advocated use of occupational analysis in developing agricultural curriculum. Moore notes: "From 1922 on, the subject matter bulletins of the Federal Board [for Vocational Education, provided for by the Smith-Hughes legislation] took a task analysis approach to the content instead of the unit approach" (1985, 11).

The cross-sectional strategy for organizing the agriculture curriculum entailed a change from teaching all of the content about a particular topic (i.e., crop production) in a single course (often a year long) to teaching selected parts of the same topic over several years of instruction (i.e., soils and crop selection during the first year, propagation during the second year, and crop marketing and processing during the third year). The format for organizing agricultural education changed from courses on crops, mechanics, and animal husbandry to Agriculture I, II, III, and IV. The advantages of the cross-sectional approach were to relate better to a diversity of student interests each year and to provide the added learning of some repetition of topics. The guidelines for this new approach to organizing the curriculum were developed by Theodore H. Eaton and published by the *Federal Board for Vocational Education* (Eaton 1925) as a federal bulletin entitled *Principles in Making the Vocational Course of Study in Agriculture in the High School*.

In 1928 the national organization of the Future Farmers of America was founded as an intracurricular youth organization for students in vocational agriculture programs. The purpose of the organization was to develop abilities in leadership, cooperation, thrift, and community service, as well as agricultural skills. By 1929, 33 states were represented at the FFA's national convention. During 1935–1936 active membership passed 100,000, and the number of local chapters of the FFA was about 4,000 (Ross 1942). A similar organization, the New Farmers of America, was founded for black students in 1935. By 1940 it had an active membership of 25,000 students (Elam 1942). These youth organizations added a unique component to the curriculum of agricultural education in secondary schools.

During the 1930s, more attention was paid to implementing the cross-sectional approach to organizing the curriculum, using occupational analysis to identify curricular content and moving from a 2-year (ninth and tenth grade) to a complete 4-year curriculum for high school agricultural education (Moore 1985). With the 1940s came further use of the cross-sectional approach to curriculum and a shift of attention to studying the agricultural industry of a local community as a whole rather than specific analyses of occupations as a basis for the content of the agricultural curriculum (Cook 1947). Moore (1985) characterizes the 1950s as a "decade of calm" as it relates to curriculum development in agricultural education. Drawing on Hammonds (1950), Moore describes the situation in agricultural education as follows:

> Today teachers face the difficulty of finding enough time to teach what they would like to teach. Most states now have good school farm shops and devote considerable time to teaching shop work. The Future Farmers of America has come into the picture with its demand for some teaching time. It is now fairly common practice to set aside individual-problem days. Much more teaching time is devoted to supervised farming than formerly. New categories have been developed to be included in the course, such as land use, farm forestry, home food supply, farm-home beautification and improvement, farm improvement, fire protection, farm safety, farm finance, farm organization, and agricultural exploration and guidance. These developments tend to lessen the time that can be given to the enterprises as such and make extremely unwise the use of teaching time in any unnecessary repetition. Conserving time is now a big problem. (88)

In a 50-year history of agricultural education published in 1956, Hamlin notes that the struggle to decide what to teach in secondary vocational agriculture continued. Among the theories and practices being tried he notes: (1) culling from the mass of knowledge about agriculture; (2) using community studies; (3) considering the psychological characteristics and development of high school age youth; (4) relating class work to the actual work of farming through supervised experience programs; (5) using the FFA as a youth organization to stimulate motivation and learn democratic procedures; and (6) recognizing the need to integrate vocational agriculture as a part of the whole of secondary education. He concludes, "We have put all our agricultural education 'eggs' in one vocational 'basket,' apparently unaware that everyone in our society has need for some appropriate form of agricultural education" (105).

Major changes were afoot again for agricultural education during the 1960s and 1970s. With the passage of the Vocational Education Act of 1963, the agricultural curriculum was to give attention to preparing students for both farm *and* off-farm agricultural occupations. The U.S. Office of Education, which had published several earlier reports addressing the purposes and objectives of agriculture education, put out a new version in 1966 (1966a) that specifically addressed this needed change. The new objectives for agricultural education were:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural production.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in (off-farm) agricultural occupations other than agricultural production.
3. To develop an understanding of and preparation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.
4. To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.

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> 5. To develop those abilities in human relations which are essential in agricultural occupations.
> 6. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities. (U.S. Office of Education 1966a, 4–5)

The instructional areas of agricultural education were expanded to include agricultural production, agricultural supplies, agricultural mechanics, agricultural products, ornamental horticulture, forestry, agricultural resources, and other agriculture (Stevens 1967). Occupational analysis was revitalized as an approach for determining the content for the new configuration of work covering the entire agricultural industry. The organization of high school agriculture began to change to accommodate these new thrusts and more divergent group of student interests. The first 2 years of the curriculum often retained the cross-sectional organization and was labeled the "core" curriculum (Roberts 1971). The later 2 years provided for elective specializations that students could choose based on their career interests. Sometimes year-long courses were broken down into semester and quarter offerings to provide more opportunity for choice and greater responsiveness to student interests. In order to provide for the more specialized study, often with a small number of students, neighboring schools sometimes entered into cooperative arrangements to share teachers and facilities and combine students.

In summary, it is clear that agricultural education in secondary schools was initiated well before the Smith-Hughes Act of 1917 (Hillison 1986); however, the Smith-Hughes Act and the Vocational Education Act of 1963 played a very significant role in shaping the agricultural education curriculum (Camp and Crunkilton 1985). The Smith-Hughes legislation substantially increased the amount of agricultural education at the secondary level and increased attention to specific preparation for agricultural work responsibilities in contrast to agricultural education as general education. The Vocational Education Act of 1963 shifted agricultural work to include off-farm as well as farm occupations related to agriculture. Also significant in its impact on curriculum was the use of the "project method" (Boone, Doerfert, and Elliot 1987) and attention to leadership development through use of a youth organization, Future Farmers of America (now called the FFA). Both brought increased attention to individualized instruction and applied learning.

Business Education

Business education started with the purpose of preparing workers for business offices. These workers were engaged in keeping records, writing letters, and accounting for money. While its roots are in the apprenticeship system and stretch back to ancient times, business education (originally called commercial education) as a school curriculum developed first in private business schools in the United States. As noted by Tonne (1971):

> The private business school was a well-established part of the U.S. school system by 1850. A form of business education had been offered well before this time: a few business-type courses had been offered in colonial times, and the academy, the precursor of the U.S. public high school, usually provided courses in business subjects. (507)

In providing business education, private enterprise was responding to an economic development need not being given attention by public high schools. Along with courses designed for specific aspects of office work, private schools introduced more general courses on topics such as the functions of the business enterprise in the U.S. economy and the legal aspects of business (Crank and Crank 1977), as well as the managing, owning, and operating of business enterprises (Daughtrey 1974).

As public schools became more committed to serving a wider range of students and providing a curriculum more relevant to the emerging U.S. economy, business education was introduced into public schools, patterned largely after the curriculum in private business schools. Prior to the 1930s, the public high school curriculum consisted primarily of bookkeeping, typing, and shorthand directed at specific occupational preparation (Crank and Crank 1977). In the early 1920s one of the first and most influential programs of business teacher education was established at New York University by Paul S. Lomax. This program would continue its leadership role through the work of its notable faculty, including Peter L. Agnew, Helen Reynolds, and Herbert A. Tonne (Sapre 1981).

During the 1930s Frederick G. Nichols, professor of commercial education in the School of Education at Harvard University, provided leadership for developing business education as a viable component of the high school curriculum. In his landmark book *Commercial Education in the High School*, Nichols (1933) provided a detailed definition of commercial education, a description of the relationship of commercial education to vocational education, and a curriculum for commercial education to fit a variety of school situations (i.e., junior high, comprehensive high school, specialized high school, and small rural schools). Commercial education was defined as

> A type of training which, while playing its part in the achievement of the general aims of education on any given level, has for its primary objective the preparation of people to enter upon a business career, or having entered upon such a career, to render more efficient service therein and to advance from their present levels of employment to higher levels. (51)

Commercial education was to refer to a comprehensive field of vocational education that addressed "all of the business services that have to do with organizing, financing, staffing, housing, and managing a commercial enterprise as distinguished from those services that have to do with manual productivity in such an enterprise" (51). Commercial education was to include both business knowledge and principles of business (learning the business) as well as business skills (preparation for business). The curriculum for a specific school situation was to be determined locally by specific attention being given to the needs of the people to be trained and the conditions under which instruction was to occur.

Nichols proposed that the junior high (grades 7, 8, and 9) be prevocational in nature and focus on the exploration and tryout of types of work in the field of commerce and the teaching of the fundamentals of business. The senior high was to address vocational commercial education with the following three objectives:

> 1. Building of an adequate background of general education of a sort which insures a high degree of social understanding; developing right social attitudes and habits of thought and action.
> 2. Development of a certain amount of occupational intelligence with respect to business organization, management, service, and employment to insure proper functioning in lower levels of employment and ultimate advancement to higher levels.
> 3. Development of the degree of technical skills required for initial employment (1933, 220–221).

Nichols' curricular recommendations were based on detailed study of commercial work, and he clearly noted that the curriculum needed to change as the nature of commercial work changes. From his viewpoint at the time, the technical subjects making up the core of business education were bookkeeping, commercial arithmetic, business writing, shorthand, and typing. In addition, he supported the need for a series of social-business subjects as being an essential part of a commercial curriculum to give general business knowledge and including commercial geography, commercial law, business organization and management or principles of business, and economics. Nichols also presents a strong argument for sound academic subjects as a part of good commercial education.

The sixth yearbook of the National Commercial Teachers Federation, titled *The Business Curriculum* (Fisk 1940), contained sections on principles of curriculum development (i.e., activity analysis, use of objectives, place of textbooks, core curriculum, relation to business, relation to general education, cooperative practices) and addressed curriculum directly in terms of setting (i.e., with chapters on cosmopolitan high schools, commercial high schools, colleges, junior colleges, private schools, evening schools) and subjects (i.e., with chapters on basic business, bookkeeping and accounting, business arithmetic, business correspondence, business law, consumer education, distributive education, economics, economic geography, everyday business, office practice and machines, personality, Gregg shorthand, and typing).

During the 1930s and 1940s consumer education was added as a significant part of the business education curriculum. Consumer education addressed the "personal use" value of business courses in everyday living (i.e., using checks, calculating interest, planning a budget, taking inventory, preparing tax records). This addition to the business curriculum was assisted by the earlier work of Herbert A. Tonne in "social business," research later completed at Colorado State University at Greeley, and the National Consumer Education Study of the 1940s. As reported by Crank and Crank (1977):

> Sponsored by the NASSP [National Association of Secondary School Principals], the Consumer Education Study resulted in the identification of 11 units of study in consumer education, and study booklets were prepared for these 11 units: The Modern American Consumer, Learning to Use Advertising, Time on Your Hands, Investing in Yourself, The Consumer and the Law, Using Standards and Labels, Managing Your Money, Buying Insurance, Using Consumer Credit, Investing in Your Health, and Effective Shopping. (5–6)

The mid-1950s saw the adoption of dual objectives for business education with attention to both preparation for business careers and economic literacy. Economic literacy was seen as the general education component of business education, and the term "basic business" was used to label this area of study, which included economics, general business, consumer economics, and consumer education (Crank and Crank 1977, 7). At about this time, the American Economics Association's concern about economic education in elementary and secondary schools stimulated business education to add economic education to basic business courses. According to Crank and Crank (1977):

> The Joint Council on Economic Education, which was organized to promote economic education throughout the nation, gave official recognition to the contribution of business education to economic education; and the entire economic education movement received a vigorous boost from business educators across the land. The problem still remained, however, of identifying specifically the economic concepts and understandings that business education could most effectively develop. (7)

Business education was finally specifically included in federal vocational education legislation and was affected by the resources and direction of the Vocational Education Act of 1963. As a contrast, marketing, or distributive education, which was earlier regarded as a component of business education, began to receive federal vocational education funding in 1948 and grew rapidly after that time as a distinctive vocational education field. With federal funding for business and office education (adding the word "office" to the title was another impact of support from federal vocational education funding) came funds for supervisory personnel at the federal and state levels and partial funding for local programs. These changes were evident in the eighth yearbook of the National Business Education, *The Emerging Content and Structure of Business Education* (Price, Hopkins, and Klaurens 1970), which had chapters addressing the factors affecting the business curriculum (i.e., changing aspects of the social scene, economic scene, world of work, school population, school curriculum, nature of office work) and modifying the business curriculum to better meet student needs (i.e., economic education, secondary and postsecondary programs, programs for disadvantaged students, and career guidance responsibilities and strategies). Interestingly, the yearbook contained chapters addressing both business and office and distributive education curricula.

By the mid-1970s, business educators thought of themselves as making a significant contribution to the curriculum of public schools with attention to occupational exploration and preparation for business careers, as well as consumer and economic education in general. Data processing was entering the curriculum as a new occupational component of business education. The tenth yearbook of the National Business Education (Brendel and Yengel 1972), *Changing Methods of Teaching Business Subjects*, had sections on basic business-economic education (including chapters on basic business, consumer economics, business law, business principles and management, and economics), marketing and distributive education, and office education (including chapters on typing, shorthand, transcription, secretarial procedures, clerical procedures, accounting, data processing, communication, and business mathematics). The career education movement strengthened business education contributions in the areas of career exploration and guidance, as well as economic education. In similar ways, the consumer education movement, through the attention brought by individuals such as Ralph Nader, has maintained the importance of the consumer education content of business education. In the context of vocational education, consumer education is shared with home economics education in the 1968 Amendments to the Vocational Education Act, which provide funds for "consumer and homemaking" education. Crank and Crank (1977) conclude their history of curricular development in business education with the note:

> Business education in the American high schools . . . is strongly vocational in nature and will continue to be so in the future. With proper regard for the importance of education both for earning a living and for using one's financial resources wisely, the dual objectives of high school business education programs will be maintained for many years to come. (10)

A conceptual framework for analyzing the business curriculum (Bahr and Wegforth 1976) presented in the fourteenth yearbook of the National Business Education Association, *Business Education Yesterday, Today, and Tomorrow*, shows the business curriculum as providing education *about* business for *all* students to prepare informed citizens *and* education *for* business for *some* students to prepare effective workers. A critical review of the history of commercial education (Weiss 1978) from 1850 onward, which focused particularly on education for clerical work, concludes that through commercial education high schools affected the development of commercial work by (1) providing a large pool of trained workers at public expense (perhaps keeping the wages down), (2) feminizing clerical work (by encouraging girls to enroll), (3) separating clerical work from manual work (suggesting higher status even though wages might be lower), and (4) encouraging passivity and a sense of inferiority in clerical students in contrast to college preparatory students. She recommended that some discussion of these effects be included in the commercial curriculum as a means of making students aware of the field's liabilities.

Concerning business education in the elementary school, Crank and Crank (1977) note that some business content has been incorporated into career education units in elementary grades and that typing is sometimes included in elementary programs. Junior high school programs are usually in the form of a business exploratory course with attention to typing, general business, and career exploration. The above changes in emphasis and direction for the business education curriculum for the 1960s and 1970s are well documented in policy statements of the Policies Commission for Business and Economic Education (1989).

In summary, business education has two major thrusts in the secondary school: (1) general education about business; and (2) specific education for business occupations. The emphasis on specific preparation for occupations (earlier called commercial education) appeared several decades before the general education emphasis. The general education component now includes consumer economics and economic education as major areas of attention. The areas making up the specific preparation for occupations component have changed over time with changes in the nature of business work (i.e., dropping shorthand, adding data processing).

Home Economics Education

Ideas and beliefs about the nature and purposes of the home economics curriculum were among the most basic notions that early settlers in the United States brought with them from their homelands. The development of ideas about the home economics curriculum from the 17th century until the present closely parallels the development of ideas about appropriate roles for females and males in American society.

The school curriculum in the 17th, 18th, and most of the 19th centuries prepared "young ladies" for household duties, social life, and church participation. Such preparation included the basic skills of reading, writing, and arithmetic, as well as specific training in homemaking tasks, especially sewing. Until the middle of the 19th century, home economics education consisted of a smattering of classes, mostly in sewing, that were taught primarily to young middle-class women.

In the mid-19th century many events and social forces converged, creating, among other things, an expanded role for home economics education. Some of the events and social forces most relevant to the development of home economics include several new waves of immigrants, many of whom lived in abject poverty; the abolition and women's suffrage movements; the establishment of land-grant universities and the manual arts movement; and the rapid expansion of immediately practical applications of scientific discoveries.

Catherine Beecher's *A Treatise on Domestic Economy*, published in 1841, has been called the first textbook in home economics. While Beecher is often remembered today as an apologist for a "separate but equal" position in relation to gender, such recent analysts as Martin (1985) and Thompson (1986) have stressed Beecher's insistence on the crucial importance of education for women in both "reproductive" and "productive" processes as women's part of her proposed educational division of labor between the sexes (1986, 19–20). Furthermore, Beecher's *Domestic Economy* may be the first modern text in any field to assemble and disseminate "state of the art" knowledge for public use (1986, 14), a task that some home economists and other vocational educators continue to take seriously as one of their basic missions today.

In 1857 Edward L. Youmans, a chemist and founder of *Popular Science* magazine, published *Household Science*, the first scientific study of food, air, heat, and light from the standpoint of the home worker. Youmans, who specifically advocated specialized education in home economics, is a typical, although early, example of the kind of male who became interested in home economics in its first years as a profession: a trained scientist who wanted the public to understand, or at least to use, practical applications of science. Benjamin R. Andrews and W. O. Atwater were two men similar to Youmans in their scientific training and commitment to home economics who joined the women, always more numerous in home economics, in developing the field as a full-fledged profession at the end of the 19th and beginning of the 20th centuries (Brown 1985, 269).

By the 1870s, household science departments were being rapidly established in land-grant and other universities, and many private schools of cooking and design were established. There was little consistency or depth in the scattered offerings comprising the home economics "curriculum" until the last quarter of the 19th century when faculty in the new college and university departments of household science began to systematize the subject matter of the field, develop teacher training courses, and write K–12 curricula. By the 1890s, domestic science, as it was then called, had been introduced into many U.S. public schools.

Also in the 1890s the burgeoning field found an energetic and influential leader in Ellen H. Richards, a chemist and author already famous for her applications of science to the household problems of food, clothing, and shelter and for her various social experiments in public lunch rooms, training of household help, and "workingmen's cottages." Richards had entered the Massachusetts Institute of Technology in 1871 as its first woman student. She was a co-founder with Melvil Dewey and the chairman of the Lake Placid Conference of Home Economics, a series of annual discussions about the nature and purpose of home economics that lasted from 1899–1908. Richards was also the first president of the American Home Economics Association (AHEA), from 1909 to 1911, founded as one of the outgrowths of the Lake Placid Conferences (Craig 1945, 22).

The first five Lake Placid conferences "were concerned with purpose, definition, scope, and the relation of the new subject of home economics to education at all levels," while the conferences during the last five years were especially dominated by "formulating the body of knowledge to be implemented in the elementary and secondary schools and in institutions of higher education, gaining acceptance in schools and colleges, and seeking state and federal assistance for program implementation" (American Home Economics Association 1987, 3). At the 1902 conference, a definition of home economics was adopted that is useful to some home economists:

> Home economics in its most comprehensive form is the study of the laws, conditions, principles and ideals which are conceived on the one hand with man's immediate physical environment and on the other hand with his nature as a social being, and in the study especially of the relations between these two factors. (3)

In the 1890s, the K–8 public school home economics curriculum generally included classes focused on the establishment of good health habits and "preparation for home helpfulness" (Bevier 1924, 142). By 1920–1921, following the passage of the Smith-Hughes Act, more than 8,000 secondary schools had home economics departments, as opposed to about 3,000 in 1915–1916 (Craig 1945, 30). Most of the larger school systems required home economics of all seventh and eighth grade girls, and home economics was also commonly taught in the fifth and sixth grades.

In the same period at the end of the 19th and the beginning of the 20th centuries, the curriculum for secondary home economics became both educationally and politically more complex than the K–8 curriculum. In this period lie the roots of an ongoing professional discussion about the nature and relative merits of "general" or "liberal" education and "vocational" education. This discussion continues to the present day in all the subfields of vocational education, especially, perhaps, in home economics and industrial education.

Without detailing the history of the "general" versus "vocational" debate as it has unfolded in the field of home economics, it should nonetheless be pointed out that one important factor in the ongoing discussion is the lack of agreement about the definition of terms. Bevier (1924), an early leader in home economics, was a chemist by training. In 1900 she became director of the Household Science School of the University of Illinois (Brown 1985, 194–195); she was also a participant at many of the Lake Placid conferences as well as a charter member and the second president of the American Home Economics Association (Craig 1945, 13). Bevier differentiated "general" and "vocational" courses within home economics. Concerning secondary home economics in the early 20th century, Bevier wrote:

> The subjects presented in home economics represent almost every phase of home activities, and are combined with science, art, literature, and history so as to give the elements of a liberal education. This type of work is known as general home economics. (1924, 142)

Bevier asserted that such "general" home economics differed from the "vocational" home economics mandated by the Smith-Hughes Act of 1917, which included "'vocational

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courses in homemaking" and "training in related occupations such as millinery, dressmaking, nursing, lunch room management" (142).

The first attempt at the development of a national curriculum to address home economics programs at the elementary, secondary, and university levels was prepared in 1913 by a committee of the four-year-old American Home Economics Association in an attempt to bring some order to the rapidly developing field (East 1980, 157). Following the death in 1911 of Ellen Richards, Bevier became chair of the prestigious eight-member committee.

The 1913 curriculum subdivided the field of home economics into the areas of food, clothing, shelter, and household and institution management (158). Under food, clothing, and shelter the committee succinctly recommended the study in each area of "selection, preparation, use." Under household and institution management, the committee said that "material basis," "social contacts," "activities and functions," and "aims and results" should be studied.

The 1913 curriculum, which predated the Smith-Hughes Act and its mandate for "vocational" home economics, did not raise the issue of "general" versus "vocational" home economics. The 1913 curriculum is better understood, in fact, as a description of contemporary college and university home economics education as practiced in the more than 250 such institutions that offered 4-year courses leading to a baccalaureate degree in home economics than as a prescription for necessary changes in the curriculum.

The period between 1899 and 1917 is important for three major reasons: (1) home economics came into being as a profession; (2) many of the major themes and issues still critical today surfaced; and (3) home economics became a standard part of the elementary and secondary school curriculum. The dramatic nature of the change in the K–12 curriculum is indicated by a few sketchy facts. For example, in 1898 there were 796 public high schools in the South; of these, only the St. Louis public schools offered home economics (Craig 1945, 7). As another example, in 1896, the year in which the position of director of domestic science was first established in New York City, only 11 public schools offered home economics. By contrast to these low enrollments, in 1914 home economics was taught in the schools of more than 3,500 towns and cities (American Home Economics Association 1987, 4).

The period between 1918 and 1970 was characterized by waves of change in home economics. What often began as a single innovation in home economics curriculum, instructional methodology, administration, or research methodology frequently gathered momentum and became a wave of change.

The single most obvious example is the elaborate bureaucracy of home economics administration developed throughout the middle two quarters of the 20th century. Federal, state, and local government and educational entities, as well as professional organizations and agencies from the private sector, were established to develop, implement, administrate, and, in a few cases, evaluate new home economics programs delivered for new reasons to numerous new audiences.

One example of the way that what began as a ripple became a major wave is the history of the home economics specialization of family relations. While Ellen Richards and others at Lake Placid certainly discussed the needs of contemporary families, the curriculum in both K–12 and higher education included almost no family studies until the 1920s, when child development and parent education emerged from the nursery school and other social movements as new areas of study. In 1920 the U.S. Children's Bureau prepared a set of outlines for study in child development. These outlines were presented at the 1921 AHEA meeting (Craig 1945, 36) and led to the establishment of many new university courses in child care. Since the public school curriculum closely followed the lead of higher education for the first third of the century, secondary schools and then elementary schools began gradually to implement child development units and classes in their own curricula.

In the 1930s the new child and parent education emphasis begun in the previous decade led to a major emphasis on family relations education. The family relations emphasis, in turn, led to the establishment of home economics courses designed for boys and men (American Home Economics Association 1987, 5) as home economists recognized that male members of families also needed family education. Enrollment of boys, estimated at 7,000 in the secondary schools of 42 states in 1930 (Craig 1945, 38), increased to approximately 1 percent of all boys enrolled in secondary schools in 1962 (Paolucci and Shear 1971, 448) and then, according to one study, to 20 percent in 1979 (American Home Economics Association 1987, 9).

Perhaps the most persuasive example of the new emphasis on family relations in the 1930s, however, is represented by the changes in definition of the fields of home economics between the 1913 AHEA unified curriculum project and the AHEA unified curriculum project of the 1930s. Craig (1945) writes, "*Original* fields were foods, clothing, shelter, household, and institutional management. Revised headings were the family and its relationships; the house, its equipment and management; family economics; food and nutrition; textiles and clothing" (40).

During the 1940s, the decade of World War II and recovery, the scope of the family relations curriculum began to include for the first time the needs of minority families and handicapped individuals (American Home Economics Association 1987, 7). In the 1950s, a new emphasis on cognitive aspects of child development reflected one of the responses to Sputnik (7). The changing social values of the 1960s, indicated by concern for the environment and for citizens to some degree disenfranchised by poverty, gender, condition of handicap, and/or race, was reflected in home economics education by a new commitment to "compensatory" education (8).

The "ripple-into-wave" process described briefly in this decade-by-decade development of the family relations component of the home economics education curriculum also applies to such other aspects of home economics education as nutrition education, launched by the school lunch movement in approximately 1914 and resulting in widespread nutrition education in elementary schools by 1943 (Craig 1945, 34, 43); consumer education, launched by classic pioneer studies of consumption economics in the 1920s and resulting in the eventual legislative renaming of the entire field of home economics education as "Consumer and Homemaking Education" by the Vocational Education Act of 1963 (American Home Economics Association 1987, 5, 8); and the expansion of student home economics organizations from scattered clubs at the turn of the century to 287 in 1926 (Craig 1945, 37) and 2,067 in 1945 (45).

The ripple-to-wave phenomenon also applies to home economics curriculum research in the 20th century. Even though reports on curriculum research were by no means an important feature of the AHEA annual meeting in its first years, a report made to the 12th annual meeting in 1919 already "urged" the establishment of a "standardized system of research" to avoid duplication of effort (Craig 1945, 35).

During the 1920s the first curriculum research began to appear. An interesting annotated bibliography of the decade's home economics curriculum research was published in 1930 by Welch and Lingenfelter of the Bureau of Education Research at the Ohio State University. It includes such titles as "Home Economics Teacher Training Under the Smith-Hughes Act 1917 to 1927," [California] "High School Courses in Science of the Household, Nutrition, and Citizen-Homemaking," "Survey of Public School Courses in Child Care for Girls," "Study of Junior High School Home Economics," and "Uses Made of the School Lunch Room by Home Economics Teachers, 1926" (1930, 2, 3, 9, 17, 26).

By the 1930s, curriculum research had moved from lists of courses and a focus on overall subject matter of the field to more specialized studies of the relative merits of the "core" and "unit" approaches to curriculum development (Spafford 1942, 74). This type of curriculum research continued in the 1940s and 1950s, with the addition of curricula developed on the basis of time and motion studies in the home and workplace.

In 1961, home economics historian Marjorie East wrote, "We [in AHEA] tried again to organize and order our subject matter," because "without a structure a subject cannot be learned effectively or economically" (East 1980, 158–159). Although some of the subgroups who first met for a week at French Lick, Indiana, in July 1961 to define basic concepts in their subject matter specialties at K–12, college, and adult levels have continued to meet throughout the years since, there has been, as yet, no attempt by the French Lick project to publish a coordinated list of common and unifying concepts, even though some subgroups of the original group are still meeting (159).

A specific attempt to list common and unifying concepts in secondary home economics was undertaken in 1961 by the Home Economics Education Branch of the U.S. Office of Education (159). Hundreds of home economists met over a period of four years to focus on the content areas of human development and the family, home management and family economics, foods and nutrition, textiles and clothing, and housing. The resulting product, known as "The Bird Book" because of a soaring seagull on the cover, is, according to East, "still the only comprehensive view of our subject matter at any level" (159). The final report identified three major interrelated concepts the committee felt unified the content of all subject matter areas in home economics (American Home Economics Association 1967). These concepts were human development and interpersonal relationships, values, and management.

In 1962 Beulah Coon reported on the home economics content actually being taught in 3,796 public schools in 50 states. She found that two thirds of the class periods in a typical program were devoted to foods and nutrition and clothing and textiles, with the majority of the content of these two areas focused on the concept of coping. The results of Coon's study were discouraging to many in the home economics field who had worked to incorporate family studies, consumer economics, and education about equity issues into the curriculum. Other curriculum research of the 1960s focused on "non-normative family structures," disease prevention, and multicultural approaches to nutrition, clothing, housing, and textiles (American Home Economics Association 1987, 8–9).

In summary, home economics classes were taught as far back in American history as colonial times, but the conscious effort to define the mission and establish the profession of home economics did not begin until the last few years of the 19th century. For the first two decades of the 20th century the home economics curriculum at the elementary and secondary levels developed from a knowledge base taught in higher education. Since the 1930s, however, the elementary and secondary home economics curricula tend to be developed locally and/or to be at least partly based on research into the needs of families and employers and the developmental needs of the students themselves.

Industrial Education

The terminology in industrial education is difficult for someone unfamiliar with the history of the field to understand. At the risk of oversimplification, but in the interests of clarity, this section provides a brief introduction to the history of the terminology of the industrial fields.

Industrial education and vocational education had a common beginning more than a century ago in such historical events as mechanics institutes, Russian manual training, the Slöd system, the arts and crafts movement, the industrial education movement, and the manual training movement. Even though the industrial education movement had strong beginnings well before the turn of the 20th century, this account of the history of the industrial education curriculum begins with the Smith-Hughes Act of 1917. It was at this point that the general education aspects of industrial education—known variously since the 1870s as manual training, manual arts, industrial arts, and now, increasingly since the late 1960s, as industrial technology or simply technology education—were organizationally separated from trade and industrial education (T & I), also known as vocational industrial education.

The Smith-Hughes Act provided funds for trade and industrial education and not for industrial arts education. Trade and industrial education, or vocational industrial education, is analogous to vocational agriculture and vocational home economics; all three have been widely, if not accurately, regarded as providing only specialized education for work or family responsibilities with little relevance or contribution to general education. Industrial arts, on the other hand, has always been strongly identified with general education and its "concern with habits, attitudes, appreciations, leisure time, home mechanics, and consumer knowledge" (Roberts 1965, 428).

Antagonism between representatives of the two fields has continued into the present, manifesting itself, for example, in the creation of entirely separate industrial education professional organizations. In 1972 Congress "authorized the regrouping of these subject fields" (Steeb 1979, 74) through funding industrial arts on a limited basis. While the historical and philosophical differences that separated the two main tributaries of the river of industrial education have not completely merged, there has been a gradual flowing together of the two branches during the last 25 years. Of the two, industrial arts has a much more controversial history and more complex curriculum issues and is the major focus of this section.

Educational practices and curricula within the industrial arts branch of industrial education have been connected to the industrial occupations focus of John Dewey (1899, 1901), whose concepts of the social purposes of education and the psychology of occupations put the study of industrial occupations at the heart of the curriculum of the famous University of Chicago laboratory schools. In fact, the name "industrial arts" began to replace "manual arts" because of the emphasis Dewey and such colleagues as James E. Russell and Frederick G. Bonser of Teachers College, Columbia University, placed on the necessity for children to gain an intelligent understanding of the processes of industrialization and the nature of an industrial society.

During World War I students in industrial arts courses and in trade and industrial programs were encouraged to make articles of direct benefit to the war effort. This involvement had a decidedly positive impact on the attitude of both students and the general public toward industrial arts programs (Barlow 1967b, 241–244).

In the years prior to World War II there was a rapid development of the junior high school movement, which had begun in 1914. Soon the junior high programs became the strongest component of industrial arts education. Junior high school industrial arts educators began to emphasize the concept of the general shop. As Martin and Luetkemeyer (1979) explain it, "The professional literature of this time was concerned with such junior high school-oriented programs as household mechanics, the comprehensive general shop, the general unit shop, and the laboratory of industries" (32).

During this period of rapid expansion, industrial arts educators discussed issues common in times of change in a profession—that is, confusion over terminology, the need for the development of commonly accepted standards for curriculum development in the field, and the development of adequate materials. By the 1930s, in large part due to the influence of Robert W. Selvidge and Verne C. Fryklund, the field of industrial arts emphasized the trade or occupational analysis approach to curriculum development. Selvidge and Fryklund (1930), in a popular teacher training text of the period, presented a "technic of analysis for the purpose of selecting the learning units involved in any subject" (3).

However, the highly detailed curriculum focus of Selvidge conflicted with the Dewey-Bonser tradition, which centered on the interests of the pupils and the needs of society, as well as on the tasks and skills to be learned. A major spokesman for the Dewey-Bonser approach was William E. Warner. Selvidge and Warner held office in different industrial arts organizations that published rival standards, philosophies, and clarifications of terms throughout the 1930s.

Under pressure to develop a document defining the field in a way that would be acceptable to all industrial arts educators, a committee appointed by the U.S. Office of Education published its report, ***Industrial Arts: Its Interpretation in American Schools*** (U.S. Office of Education 1938). The committee defined industrial arts as a "phase of general education that concerns itself with the materials, processes, and products of manufacture, and with the contribution of those engaged in industry" (1). Martin and Leutkemeyer point out:

> This definition emphasized the position that industrial arts education be considered a curriculum area rather than a specific subject and that it have general values to apply to all levels of education. Although the report was intended to reflect a unified position acceptable to a majority of educators, the efforts of committee members such as William E. Warner and Lois C. Mossman clearly reflected the philosophical position of Dewey and Bonser. (1979, 34)

In 1939 Warner and others founded the Industrial Arts Association to further the cause of industrial arts at all levels of education. The new organization decided to develop a curriculum proposal, which, however, was interrupted by World War II. During the war, industrial arts education again helped substantially with the war effort and in effect functioned as prevocational training, working in closer harmony with educators from trade and industrial education than usual.

In the postwar years the balance of power in industrial education curriculum philosophy again seemed to shift away from the occupational training emphasis of the war years in the direction of a student-focused, general education approach to industrial arts. At the 1947 American Industrial Arts Association conference, Warner (1965) presented a curriculum proposal that eventually became known as ***A Curriculum to Reflect Technology***. Lux (1982) writes:

> This proposal probably has had a greater impact than any other upon industrial arts theory. It introduced subject-matter divisions

> of communications, construction, management, manufacturing, power, and transportation. Bits and pieces of the ideas and terminology of the proposal gradually filtered into the literature, but the proposal did not affect practice on a widespread basis. Yet, the proposal stimulated curriculum innovation in the 1960s, and today the basic proposal and its terminology are much like what is proposed in a number of states. (859)

Although the 1950s were predominantly a stable period for industrial arts education, there were several innovations during this period: the emphasis on mass production as a unit of study or a method of teaching; the influence of Gestalt psychology on the curriculum, which led to a new focus on problem solving; and the conception of the first large-scale curriculum projects that were to predominate in the 1960s (e.g., Maley 1973, 1979; Olson 1957).

A national study of the industrial arts program in the public secondary schools of the United States was made in 1962–1963 (U.S. Office of Education 1966b). The survey involved a stratified cluster sample of the 25,526 public secondary schools of that time. There were 76 different courses in the area of industrial arts, grouped into general industrial arts, general woods, drafting, general metals, graphic arts, electricity and electronics, crafts, power mechanics, home mechanics, photography, ceramics, industrial arts mathematics and science, plastics, textiles, transportation, and miscellaneous subjects.

During the 1960s a remarkable number of innovative curriculum approaches in both industrial arts and trade and industrial education were fielded, including the American Industry Project, which analyzed various industries to determine both the content for a study of industry and the organization of the content into three project-focused courses for eighth, tenth, and twelfth grades (Face 1965); expansion of the Maryland Plan begun in 1952 (Maley 1973, 1979), a cluster-concept approach that centered on the development of people rather than things; the Industrial Arts Curriculum Project (IACP) (Lux 1979; Towers, Lux, and Ray 1966, 1967), which produced the well-known World of Construction and World of Manufacturing curricula; and the orchestrated systems approach to industrial arts (Yoho 1969).

Of these curricular innovations, the IACP has been most influential in industrial arts education. The IACP curriculum was divided into six parts, each of which was further subdivided: industrial management technology, which includes planning, organizing, and controlling; industrial production technology, which includes preprocessing, processing, and postprocessing; industrial personnel technology, which includes hiring, training, working, advancing, and retiring; industrial material goods, which includes constructed material goods and manufactured material goods; construction technology, which includes initiating the project, developing the project, and implementing it; and manufacturing technology.

In the trade and industrial fields, the Maryland Plan was the most influential curriculum model (Finch 1983). The Maryland Plan's cluster concept approach prepared graduates to enter a wide range of occupations having common work elements. In a 1980 review of the status of the cluster concept, Maley reported that 45 states and territories had cluster concept programs in operation.

In assessing industrial education in the 1960s, Householder (1979) said that a "fundamental re-examination of the functions, purposes, and content of industrial arts education took place" with "simultaneous innovation" occurring in several settings (114, 115). He continued:

> As individuals and groups of industrial arts educators undertook to make revisions in existing programs, four major directions were pursued: (a) Industry as a source of content had been the acceptable model for decades; it seemed logical to extrapolate from the past and move to update existing industry-centered programs. (b) As an expanded structure was sought to include the industrial sphere, technology became a logical base; technology could be ordered into a taxonometric matrix and studied as a discipline. (c) The individual assumed a high level of priority during the 1960s; as education focused upon individualized instruction and upon the importance of individual development for social progress, the individual became a logical focal point for efforts in industrial arts program revision. (d) Perhaps the most obvious approach in curriculum improvement is to build directly upon existing programs, modifying them to meet the needs of the times. This approach made it possible to achieve gradual growth within existing situations. (115)

In summary, both industrial arts and trade and industrial education have strong roots in the various educational responses to industrialism in the 19th century and earlier. The two tributaries of the mainstream of industrial education diverged with the passage of the Smith-Hughes Act in 1917, except for the period of the two World Wars. In 1972 the streams became more convergent when Congress began for the first time to award federal funds to industrial arts education. Throughout the years, industrial arts education itself suffered from various philosophic divisions. Nonetheless, industrial arts flourished and was adopted by almost every public school in the United States as part of general education. Industrial arts was characterized by a relatively orderly development until the 1960s when the field began to burst with new activities, ideas, and curriculum approaches as it moved toward a new focus on technological literacy and technology education.

Marketing Education

Ten years before the Smith-Hughes Act of 1917, marketing education was getting its formal start as retail training under the leadership of Lucinda Prince in the Boston area with the support of the Women's Education and Industrial Union. In 1908 she opened the Union School of Salesmanship with financial support from Boston merchants. Interest in the school resulted in a retail training program in the Boston public schools that developed into the Prince School of Store Service (Haas 1939) and, later, a graduate department of Simmons College of Boston. In 1919, Prince authored the first bulletin of the Federal Board for Vocational Education dealing with distributive education, *Retail Selling* (Prince 1919). Retail training programs in public schools spread from Boston to other large cities across the country (Emick 1937). Emick reported that cooperative training between schools and businesses in retail sales was operating in 44 cities and enrolling 4,508 students in 1933 (Emick 1937, 10–12).

Marketing education (then known as distributive education) became a distinctive program separate from business (commercial education) in 1936 with attention and support from the George-Deen Act, which extended the Smith-Hughes legislation. Strengthening distributive education was seen as one way to stimulate a depressed economy in the context of the Great Depression. Under the direction of the George-Deen Act, distributive education began as an adult education program (not in the high school) designed to help those who were unemployed to find work in distribution and marketing occupations, but within a year or two had moved into the high school. Distributive education got its name from Paul H. Nystrom, a marketing professor at Columbia University and member of the Federal Board for Vocational Education (Meyer and Furtado 1976). Nystrom envisioned a program for distributive education similar to the training for agricultural, home economics, and industrial education established by the Smith-Hughes Act (Furtado 1973). Early support also came from Frederick Nichols, noted earlier as a leader in commercial education and also a member of the Federal Board for Vocational Education. He was a strong advocate for increasing attention to retail sales training beyond what it was getting as a part of commercial education. According to Meyer and Furtado (1976), "the retailing backgrounds of the early teacher-coordinators and curriculum bulletins published by the original Federal Board for Vocational Education became the basis for the early program of instruction" (45). The first National Conference for Distributive Education, called the Dunwoody Conference and held in 1939, reaffirmed the adult focus of distributive education and recommended development of instructional materials in five functional areas used to conceptualize retailing: (1) merchandising, (2) promotion, (3) personnel, (4) operations, (5) finance, and (6) control (National Conference for Distributive Education 1939).

Although the early emphasis was primarily on adult programs, secondary school programs in retail selling appeared as early as 1912 and federally supported secondary programs as early as 1937. Later a youth organization, Distributive Education Clubs of America (DECA), was chartered in 1948 with representatives from 17 states (Meyer and Furtado 1976). DECA was seen as an integral part of the high school distributive education curriculum with the purpose of developing leadership, vocational understanding, civic consciousness, and social intelligence (Crawford and Meyer 1972, 184).

Distributive education retained its adult focus until the 1950s, when it began to be viewed as a program for secondary, as well as postsecondary and adult, students. In 1957, John A. Beaumont was appointed director of the Distributive Education Branch of the Division of Vocational Education in the U.S. Office of Education and provided leadership to move marketing beyond the retail field. Specialized curriculum relating to industries such as floristry, home furnishings, and hotel and lodging became a part of the curricular offerings in distributive education (Meyer and Furtado 1976, 57).

The Vocational Education Act of 1963 changed the orientation of distributive education programs by specifically including federal support for preemployment-level training in distributive education and for students under 16 years of age. At a 1963 National Clinic on Distributive Education, Nelson presented a paper entitled "Basis for Curriculum Development in Distribution," which provided the basis for conceptualizing the distributive education curriculum in five competency areas: (1) social competency, (2) basic skill competency, (3) technology competency, (4) marketing competency, and (5) economic competency (1963, 3). In 1966, an article by Nelson, then in the U.S. Office of Education, described a conceptual framework for curricular development in distributive education with attention to distributive competency areas, functions of marketing, and levels of distributive work. During this period several competency studies were done to analyze and describe the tasks done by those employed in marketing occupations. One of the best known of these studies, which started as an examination of competencies required of retail workers as a basis for planning teacher education and later focused on implications for secondary programs in distributive education, was done by Crawford (1967). She stated that teachers must go to the field in order to determine what workers needed to know.

Crawford and Ertel (1970) more specifically described the competency pattern approach to identifying the marketing competencies to be addressed by the curriculum as including three elements: (1) basic concepts relating to marketing and economics, (2) listing of critical tasks for marketing jobs, and (3) listing competencies required to perform these tasks. At the same time, work was going on to develop a standard taxonomy of distributive occupations and distributive education programs (Nelson 1970).

By the end of the 1960s, the U.S. Office of Education (1969) produced a publication entitled *Distributive Education in the High School*, which laid out the curriculum structure, content, and instructional methods for high school, post-high school, and adult levels of distributive education. The preparatory curriculum, designed for a wide range of distributive occupations, was organized to address three levels of occupations: (1) basic jobs curriculum—to develop fundamental techniques in sales and sales-supporting services; (2) career development job curriculum—to develop judgment skills in relation to marketing, merchandising, and management; and (3) specialist job curriculum—to emphasize specific functions, product areas, or service fields.

Integral to the curriculum in distributive education were its two major approaches to instruction, the cooperative plan and the project plan, and its youth organization, Distributive Education Clubs of America. The cooperative plan was used extensively from the beginning of distributive education; the project plan was introduced after 1963.

Crawford and Meyer (1972) describe the cooperative and project plan as follows:

> The cooperative plan is an organized pattern of instruction which involves regularly scheduled part-time employment and which gives students an opportunity to apply classroom learning in practice. It enables them to develop occupational competencies through training on jobs related to their occupational interests.
>
> The project plan is an organizational pattern of instruction which involves a series of selected learning activities or projects related to the field or marketing, merchandising and management and which are related to a student's occupational interests. (11–12)

As is noted, these plans result in actual work issues and problems becoming a central part of the curriculum for distributive education. This focus is reinforced by the typical patterns of offering distributive education by the 1970s, which Crawford and Meyer describe as follows:

> A one-year curriculum based on the cooperative plan and including two class periods based on the cooperative plan and one class period of daily instruction;
> A two-year curriculum with the first year based on the project plan and the second year based on the cooperative plan, each involving one class period of daily instruction;
> A three-year curriculum with the first year based on the project plan and the second and third years based on the cooperative plan;
> A one-year accelerated curriculum based on the project plan and designed for those planning for advanced study beyond the high school;
> A one- or two-year specialized curriculum on either the project or the cooperative plan designed to develop competencies for such specialized areas as fashion merchandising, food distribution, and petroleum distribution. (1972, 7)

The heavy reliance of distributive education on a work experience component integral to the school-based instruction is a unique feature of distributive education among other secondary subject matter areas, including the other vocational education subjects.

By the late 1970s, distributive education was defined as follows:

> Distributive education, one of the seven major vocational education service fields, addresses that part of the world of work concerned with the marketing of goods and services. Distributive education derives its instructional base from the employment field of marketing and has as its mission the preparation of individuals for employment in distributive occupations, including business ownership. (U.S. Office of Education 1978, 7)

The inclusion of attention to business ownership or entrepreneurship was becoming a more explicit aspect of the curriculum by being designated as one of four levels of employment addressed by the curriculum (i.e., threshold entry jobs, career-sustaining jobs, specialization jobs, and entrepreneurial jobs).

The organization of distributive education in terms of scope and occupational responsibility was provided by its listing of instructional program codes, which included advertising and display services; apparel and accessories marketing; automotive, recreational, and agricultural vehicles and accessories marketing; finance and credit services; floristry; farm and garden supplies marketing; food marketing; food service marketing; general merchandise retailing; hardware and building materials marketing; home furnishings marketing; hotel, motel, and lodging services; industrial and institutional marketing; insurance; international marketing; personal service marketing; petroleum marketing; real estate marketing; recreation marketing; transportation and travel marketing; business services marketing; business ownership; and general marketing. Across these occupational areas distributive education's curriculum was described by the U.S. Department of Health, Education and Welfare as consisting of five broad competency areas (similar to those suggested by Nelson cited earlier) made up as follows:

> 1. Marketing skills—knowledge common to all distributive occupations and reflecting the functions of marketing to include selling, sales promotions, buying, operations (sales-supporting activities), marketing research, and marketing management.
> 2. Product or service technology skills—knowledge about particular products or services needed in order to help consumers or users reach buying decisions.
> 3. Social skills—personal effectiveness in relation to customers, to the business, to other employees, and to job activities. Includes ethics, human relations, supervisory skills and leadership.
> 4. Basic skills—skills of mathematics and communication (i.e., reading, listening, speaking, and writing) applied to the practices, terminology, and requirements of each cluster of marketing occupations.
> 5. Economic concepts of private enterprise—knowledge and attitudes about the competitive enterprise system and its impact on marketing; awareness of the importance of marketing in the economic cycle of production, distribution, and consumption; and one's ability to access individual progress with marketing and distribution occupations. (U.S. Office of Education 1978, 21–23)

In summary, marketing education has its heritage in adult education linked closely to the business and industry sector. Its expansion as a separate program from business education came after the George-Deen Act of 1936 and its manifestation as a high school subject after the Vocational Education Act of 1963. The focus on distribution occupations along with the cooperative and project plan of instruction have given it uniqueness as a high school subject and vocational education field.

Health Occupations Education

The development of health occupations education is closely related to the history of the education of working-class women in the United States. During the 19th century, courses in practical nursing, or the nursing arts, were taught in small schools devoted to preparing students for occupations considered suitable for women. Such training in practical nursing was similar to contemporary training for nurse's aides.

After the turn of the century, the National Society for the Promotion of Industrial Education and the Smith-Hughes Act of 1917 provided impetus for programs in the public schools especially designed for women. In addition to home economics courses, classes in practical nursing became part of the curriculum in a few public secondary schools. Developments in the field were slow until World War II, when there was a great increase in the need for health and other kinds of workers (Holloway and Kerr 1969, 3).

The George-Barden Act in 1946 and the Health Amendments Act (Title II of the amended George-Barden Act) in 1956 provided federal funds for educational programs to prepare practical nurses, including the establishment of a supervisor to provide leadership in the field at the state level. The establishment of a high-level state leadership presence resulted in the final separation of health occupations education from industrial education; the two subfields of vocational education had been intermingled for a half century. The Area Redevelopment Act of 1961, the Manpower Development and Training Act of 1962, and the Vocational Education Act of 1963 have furthered the development of practical nursing education (Holloway and Kerr 1969, 3).

Career Education

In the four decades after the Civil War, a new industrial and urban America characterized by a greatly expanded railway system, heavy industries, mining, and mechanized agriculture came into being. In this new society, with its qualities of rapid technological change and increasing occupational and geographical mobility, the old models for teaching people how to perform effectively in their occupations, including education at home, apprenticeship, and on-the-job training, were no longer sufficient (Wirth 1981, 35). The public schools were asked to take an increasingly major role in occupational preparation.

The single individual most responsible for the introduction of career education into the public schools was Frank Parsons. In 1907 he gave an address on choosing an occupation to members of a graduating class from a Boston evening high school. At the end of the address, several of the new graduates asked him for personal appointments to discuss further their occupational choices. Six months later, in January 1907, Dr. Parsons opened the Vocation Bureau to provide vocational counseling. Many people "between 15 and 72 years of age" came to see Parsons in the first few months of the Bureau's operation (Roberts 1965, 338–339), which convinced the Boston public schools to establish the first school-based vocational guidance program in 1909. Also in 1909, a few months after Parsons died, his book, *Choosing a Vocation*, the first textbook in the field of career education, was published (Parsons 1909). Staff in the Boston program included both counselors and teachers who conducted guidance activities on a volunteer basis (Roberts 1965, 340). Thus, from the outset, the activities of career education have been divided between counselors and teachers and have included classroom, group, and individual components. Historically, it has most often been the occupational information component of career education and guidance that has been reserved for classroom teachers or shared between teachers and counselors.

According to Goldhammer and Taylor (1972), statements emphasizing the importance of career education under its various names (including "vocational guidance" and "occupational education") have been included and reemphasized in practically all of the major statements of goals for American education, including statements by some influential individuals. For example, Senator Carroll S. Page of Vermont gave a 3-hour speech in 1912 introducing an early vocational education bill in which he strongly defended the concept of career education:

> People are beginning to realize that boys and girls must be taught to earn a living and that they cannot spend their entire time in studying so-called classical subjects. All children must be educated for their ethical side and must be taught about the higher things of life, but they must also be taught that they must support themselves and be given lessons in how to earn money. Our schools should be well balanced, with both these ideas kept well to the front. (as quoted in Barlow 1973, 32)

The early influence of vocational education on career guidance was demonstrated with passage of the Smith-Hughes Act, which emphasized the role of supervised work experience and placement. Also, "vocation" was among the seven objectives listed in the 1918 publication by the Commission on Reorganization of Secondary Education entitled *Cardinal Principles of Secondary Education*. According to the Commission, "a good citizen earns his living, contributes to the general welfare by working, and maintains desirable relationships with fellow workers" (quoted in Goldhammer and Taylor 1972, 1–2). Furthermore, the Educational Policies Commission of the National Education Association in 1938 listed four current school objectives—third among them "Economic Efficiency," meaning that "the school should produce an individual who selects his own vocation, understands and lives according to the requirements of his job, improves his working efficiency, and plans his own economic life" (quoted in Goldhammer and Taylor 1972, 2). Finally, the first of 10 imperative needs of youth, according to the Educational Policies Commission of 1944, was:

> All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as education in the skills and knowledge of their occupation. (2)

Modern theories of career development began appearing in educational research literature during the 1950s. At that time, the occupational choice focus of the first 40 years of career development was beginning to give way to a broader, more comprehensive view of individuals and their occupational development over the life span. Occupational choice was beginning to be seen as a development process. Donald Super (1957, 1984) brought together what was then known about careers as "lifelong sequences of study, work, and related roles" and "helped to put to use in guidance and counseling what others had found in their research" (1984, 28). It was during the late 1950s and the 1960s that the term "vocational development" became popular as a way of describing the broadening view of occupational choice, although, according to Hoyt (1987, 1), the term "career education," so popular in the 1970s, was first coined in the 1956 publication *Manpower and Education*, developed by the Educational Policies Commission of the National Education Association and the American Association of School Administrators (Educational Policies Commission 1956).

Vocational Education

According to Roberts (1965), "The history of vocational education is the history of man's efforts to learn to work" (31). If work is defined broadly to include the work done in and through family life and "man" relates to both men and women, then this statement seems a fair conclusion. The earliest form of vocational education largely involved the "pick-up" method of acquiring competence through observation and imitation, often of an older family member. Later this process was formalized into the apprenticeship method, with a master who was under contract to teach students (apprentices) a vocation. As described by McClure, Christman, and Mock (1985), the apprenticeship system became the major method of vocational education during the late Middle Ages through merchant and craft guilds. The apprenticeship period often lasted 7 years and involved both vocational and moral education. From the status of apprentice, students moved to journeyman and, with successful accomplishments, to the master level. By the 1800s the apprentice system had declined substantially because of (1) mechanization, which reduced the skills required for production and changed skill requirements more rapidly, and (2) expanded commerce, which increased the competition for workers (see Bennett 1926 for more explanation).

During colonial times in America, the apprenticeship system was very strong for a wide variety of occupations, including trades, merchants, housekeeping, law, medicine, and teaching. Apprentices were of two kinds, voluntary and indentured, the latter usually involving children of the poor, orphans, and bastards. Masters were to provide training in the basic skills of reading, writing, and arithmetic as well as specific job skills. With the coming of the Industrial Revolution by the 1860s, the apprenticeship system fell into disuse for the reasons noted above—it was too slow to meet demand, and factory methods needed a different profile of changing skills (McClure, Christman, and Mock 1985).

As noted by Barlow (1967a), vocational education emerged as a composite involving a number of forces, approaches to instruction, instructional settings, and subject matter fields that developed somewhat independently. Bennett (1926, 1937), Hawkins, Prosser, and Wright (1951), McClure, Christman, and Mock (1985), and Roberts (1965) describe early school-based vocational education as including:

1. *Franciscan Mission Schools.* Around 1630 Franciscan missionaries established as many as 25 of these schools in New Mexico. The schools combined work and education with students (primarily Indian) over age 9 trained in areas such as carpentry, metalworking, masonry, and tailoring. The most talented of the students later became teachers in these schools.
2. *Franklin's Academy.* In 1749 Benjamin Franklin proposed that an academy be developed to prepare young people for the problems of making a living. The curriculum included English, mathematics, history, and commerce. However, when established in 1751, the academy was made up of both a Latin school (because of strong advocacy to include classic studies) and an English school (which contained the study of commerce). With the Latin master as head of the academy, the English school was gradually reduced to an elementary school, and the academy became a preparatory school for college.
3. *Mechanics Institutes.* Originally developed in England, mechanics institutes were introduced into the United States in the 1820s, with the first one in New York City. Their purpose was to provide evening classes for adults in a variety of subjects, both academic and vocational.
4. *Lyceums.* Where mechanics institutes addressed the needs of urban workers, lyceums offered similar services for farmers and tradespeople in small towns. Approximately 1,000 local lyceums were in operation by 1833 and were organized by states into a national movement. The local lyceum provided a place and context for working people to gather and discuss topics of mutual interest. Subjects included mechanics, chemistry, botany, mathematics, hydraulics, history, and politics.
5. *Technical Institutes.* Starting with the Rensselaer School in 1824 and later including the Worcester, Massachusetts, Polytechnic Institute (1868), Case School of Applied Science in Cleveland, Ohio (1881), and California School of Mechanics Arts in San Francisco (1895), technical institutes were established to improve the skills of workers by emphasizing the practical application of science. In some of the schools, study included instruction in classrooms combined with work settings on farms and in workshops.
6. *German Drawing Schools.* The Centennial Exposition held in Philadelphia in 1876 included drawings, charts, and diagrams describing machines and mechanical processes used in German industry. American business representatives admired the drawings and, as a result, began to advocate for inclusion of practical drawing (as opposed to artistic drawing) in American schools to assist students in grasping mechanical principles and machines. With this pressure, drawing was added to the curriculum of many public high schools during this time.

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7. *Russian Manual Training*. The Centennial Exposition of 1876 also resulted in adoption of the Russian system of using shop training as part of the curriculum in vocational education. The idea, drawn from a display from the Moscow Imperial Technical School, was to use training shops exclusively for teaching and production shops for training and actual production of products for sale. The training shops were very structured with lectures, exercises, and demonstrations. John D. Runkle, president of the Massachusetts Institute of Technology, was so impressed with this concept that he recommended that the Institute establish training shops for engineering and manual and industrial courses. Exhibits from the Centennial Exposition remain at the Smithsonian Museum in Washington, DC.
8. *Slöd System*. American schools, particularly elementary schools, turned to the Slöd system, developed in Scandinavian countries, to improve on the Russian system of training shops. It was difficult to hold the interest of younger students in the highly structured format of the Russian system. The Slöd system combined attention to physical and mental development with learning specific skills. The system relied on instructors who were trained as teachers rather than artisans and was designed for students to complete an entire project with concern for both beauty and usefulness. The Slöd system was adopted widely, with 25 percent of all schools offering manual arts in grades 7 through 12 using the system by 1894.
9. *Arts and Crafts*. The Arts and Crafts Movement, which began in England during the latter 1800s, also was transported to America and influenced the curriculum of manual arts programs. It brought more emphasis to creativity, more variety of materials (i.e., leather and metal), and flexibility (dropping heavy reliance on skill exercises) to vocational education.
10. *Manual Training*. Johann Heinrich Pestalozzi (1746–1827), a Swiss educator, has been considered the "father of manual training" (McClure, Christman, and Mock 1985). He established a school in Europe where manual work was combined with general education. This school served children of the poor. Pestalozzi believed that sound education, particularly for these children, needed to include both vocational and general education. He wrote *Leonard and Gertrude* (Pestalozzi 1910), a romantic novel that described this education with emotional effects. The book was a major success. However, while he exerted considerable influence on the American education system and particularly on industrial education, his school was a financial disaster. One of the American educators influenced by Pestalozzi's ideas and by the Russian and Slöd systems was Calvin Milton Woodward, dean of the Polytechnic faculty at Washington University in St. Louis. In 1890, Woodward initiated the Manual Training School for boys 14 years of age and older. The curriculum included science, mathematics, language, literature, history, drawing, and shop work. Shop work was included as a way to keep instruction more interesting, to provide learning in the use of basic tools common to a variety of jobs, and to increase general education. Woodward was not supportive of specific job training at this age because it narrowed student choices. His school required testing in basic skills before admission and acquired a reputation as a tough and demanding school. In 1915, 35 years later, the school was closed because the St. Louis public schools accepted responsibility for vocational education. But to quote McClure, Christman, and Mock (1985), "Woodward's basic concepts of vocational education in the secondary schools was an accepted part of American education" (25).
11. *Cooperative Training*. The development of cooperative training (as distinguished from cooperative learning) can be traced back to Herman S. Schneider, a civil engineer at Lehigh University who, in 1901, called for a plan to split the study time of engineers between classroom and actual job experience. He believed that existing engineering education lacked practical experience as a key component. He was first able to implement the plan in 1906–1907 at the School of Engineering at the University of Cincinnati—and with its success, by 1927, the cooperative method was being used in 20 to 25 university engineering programs. Introduction of the cooperative plan into the high school curriculum can be documented back to 1908 in Fitchburg, Massachusetts. There, Daniel Simonds, who was excited by Schneider's idea, implemented an industrial cooperative training program at the high school level.

All of the above movements were influencing public high schools prior to 1900. At the same time, the number of young people attending high school was growing rapidly. While in 1870 public high schools were educating a select group, almost all of whom went on to college, by the decade 1910–1920 the percentage going on to earn a college degree dropped to 20 (Roberts 1965, Venn 1964). Increased interest was given to vocational education as a means to meet the needs of those not going on to college and of the labor force for middle-range occupations (between professional and unskilled). The Manual Training School at Washington University was the first school of this type, with the first public manual training school opening in Baltimore in 1884. McClure, Christman, and Mock (1985) note:

> As the nineteenth century drew to a close, the number of publicly supported manual high schools and the number of high schools that included manual training in their general curriculum grew. By 1900, the public school system in over one hundred cities included manual training in the curriculum of their high schools. However, the complete acceptance of vocational training as a part of the general high school curriculum did not come until the twentieth century. (29)

The period 1900 to 1920 was very significant to vocational education in the United States. Some of the initial federal encouragement for vocational education began with the Morrill (Land-Grant Colleges) Act of 1862 and amendments to the Morrill Act of 1890, which provided for colleges with major focus on training for working-class students and emphasizing agriculture and mechanics arts. The Nelson Amendments to the Morrill Act in 1907 increased funding and allowed the use of funds for training agriculture and mechanics arts teachers. By the turn of the century, the federal government was emphasizing funds for practical (i.e., professional and vocational) education over general (i.e., liberal arts and humanities); however, most funds were aimed at institutions that served adults (beyond high school).

In 1906, under the leadership of Charles R. Richards, professor of manual training at Columbia University, and James P. Haney, director of art and manual training in the New York City school system, the National Society for the Promotion of Industrial Education (NSPIE) was initiated. This organization, made up of business and industry representatives and professional educators, would provide the support for later passage of the Smith-Hughes Act and eventually form the American Vocational Association. The NSPIE orchestrated the interests (sometimes conflicting) of agricultural organizations and agencies, the National Education Association, the American Federation of Labor, the National Association of Manufacturers, the Chamber of Commerce, and the spirit of the Progressive era as a means to gain federal support for vocational education in secondary schools. Through the work of a Commission on National Aid to Vocational Education provided for by federal legislation passed in 1914, the Smith-Hughes Bill was drafted after considerable study and discussion (Swanson 1966).

Senator Smith and Representative Hughes, both from Georgia, had been strong advocates of vocational education. They introduced their bill in 1916 with good support in both the Senate and House. In December 1916, President Woodrow Wilson, in his message to Congress, gave special attention to vocational education. After brief congressional debate and action, he signed the bill into law on February 23, 1917. The Smith-Hughes Act provided funds for (1) salaries of teachers, supervisors, and directors of agricultural programs; (2) salaries of teachers of home economics and industrial and trade subjects; and (3) training of teachers, supervisors, and directors of agricultural programs and teachers of home economics and industrial and trade subjects (McClure, Christman, and Mock 1985, 64). Speculation about why commercial (business) education was not included suggests that the congressional leaders felt that private business colleges would be against the bill if it included commercial education. The funds were in the amount of $1,600,000 for 1918, to be increased to $7,167,000 by 1926. States and local districts were required to match these federal funds dollar for dollar. Funds could be used to support vocational education in full-time day schools, part-time schools, and evening schools. The act also provided for a Federal Board of Vocational Education to administer the new federal program. Charles A. Prosser, former secretary to the National Society for the Promotion of Industrial Education, was selected by board members to be the first director of vocational education and chief executive officer of the board. Assistant directors were appointed for each major area assigned to the board: these included agriculture education, trade and industrial education, home economics education, and research services. The board served an important role in curriculum development and direction for each of these areas by holding meetings and publishing a large number of curriculum bulletins.

At the end of the 1910s, the idea that vocational education was an appropriate and integral part of the high school curriculum was confirmed not only by passage of federal legislation but by the Commission on Reorganization of Secondary Education (1918), which issued the famous seven "cardinal principles of secondary education": health, command of fundamental processes, worthy home membership, development of a vocation, civic education, worthy use of leisure time, and ethical character. In 1920 Snedden published his book *Vocational Education*, asking, "Shall we have vocational education in the high school?" and answering:

> Yes, if the floor and grounds of the high school, primarily designed to serve the purposes of liberal education, can be adapted to give practical training to locomotive engineers, coal miners, street car motormen, sailors, printers, shoe machine operators, tractor engine drivers, poultry raisers, carpenters . . . .(24)

In the spirit of social efficiency, he goes on to recommend:

> Any comprehensive program of vocational education must be designed primarily to prepare young persons for the effective exercise of productive vocations as now found; it may be designed secondarily and incidentally to anticipate probable social changes in the character and incidence of vocational activities; and, under some circumstances (taking due account of the relatively fundamental and only slightly controllable character of economic forces), to further desirable, and to restrain undesirable, economic tendencies by its emphasis on one or the other of different possible education objectives. (411)

Earlier, Snedden's positions about the desirability of separate vocational high schools and the conservative stance toward the subject matter of vocational education had been hotly contested by John Dewey in a published debate (Dewey 1915a, 1915b). Dewey profoundly disagreed with Snedden on social and political grounds:

> The kind of vocational education in which I am interested is not one which will "adapt" workers to the existing industrial regime: I am not sufficiently in love with the regime for that. It seems to me that the business of all who would not be educational time-servers is to resist every move in this direction, and to strive for a kind of vocational education which will first alter the existing industrial system, and ultimately transform it. (Dewey 1915b, 42)

The history of the relationship of vocational education to general education from 1845 to 1945 is well laid out by Mays (1946), who concludes, "On the whole, the first two decades of the new century saw the acceptance by the general educator of vocational education as a responsibility of the public secondary school program," (105) and, "By the close of the period studied, most leaders in general education had come to be interested in establishing a relationship between vocational and general education which would be most conducive to the realization of the most desirable outcomes of both" (107).

During the 1920s and 1930s, vocational education came of age through federal assistance. Federal guidelines called for states to create state boards to administer vocational education funds and for submission of a state plan for federal approval. A major purpose of the federal legislation was to stimulate development of vocational education in states. According to enrollment figures cited by McClure, Christman, and Mock (1985, 73), the federal government was very successful in this purpose. During 1918, there were 165,000 students involved in programs funded under the act. The number participating under the legislative funds grew to 1,249,000 by 1935. The George-Reed Act (1929) and the George-Ellsy Act (1934) provided increased federal funding for vocational education. Charles A. Prosser (Prosser and Allen 1925) introduced his 16 desired characteristics of vocational education in 1925 (later to be known as Prosser's Theorems), which were used widely to guide the planning and development of vocational education. In 1936 the George-Deen Act again increased funding and added distributive education as a program area to be supported for part-time and evening programs, primarily directed at adults.

During the 1940s, vocational education was used as a major strategy to provide training to support the war effort through special federal funding and programs. In 1943, the National Society for the Study of Education entitled its forty-second yearbook *Vocational Education* (Henry 1943). A theme running through the chapters is the rationalizing of a set of objectives for vocational education and the relation of these objectives to the total educational program of schools. Following the war, the country was facing major problems concerning jobs and training for those returning from the war, a more diverse student body, inequity in educational opportunity, and enrollment increases caused by the "baby boom." Debate in Congress over the George-Barden Act (Vocational Education Act of 1946) provided a sense of the issues facing vocational education at that time: (1) the private business schools felt that vocational education was wasteful of funds and not providing adequate training to ensure placement of students; (2) organized labor urged that vocational education was training too narrowly, and poorly at that, and recommended a return to liberal arts, with training to come after school through apprenticeship systems; and (3) provisions for occupational guidance, public service training, office training, supervision of industrial arts, and establishment of area schools below the college level were dropped from early versions of the bill. However, vocational education success in training for the war effort is credited with passage of the George-Barden Act, again increasing funding for vocational education.

The 1950s initiated a period of reexamination of the role of vocational education. In 1953, administration of federal efforts in vocational education moved to the Office of Education in the new cabinet-level Department of Health, Education and Welfare. As a part of the Health Amendments Act of 1956, $5 million was added to vocational education for health occupations education, particularly for practical nursing. In 1958, Title VIII of the National Defense Education Act authorized annual appropriations of $15 million for 4 years to establish area vocational education programs of less than college level to prepare skilled technicians important to national defense and scientific progress.

In 1961, with the changing nature of work caused by technological change, President John F. Kennedy directed the Secretary of Health, Education and Welfare to appoint a Panel of Consultants on Vocational Education to review federal legislation supporting vocational education and suggest future directions. The panel included representatives from agriculture, industry, business, labor, and education and was chaired by Benjamin C. Willis, general superintendent of schools in Chicago. Recommendations of the panel suggested the areas of change needed in vocational education, many with curricular implications. These recommendations called for expanded high school programs, full-time post–high school programs, short-term courses for youth and adults, individualized programs for the handicapped and disadvantaged, and support services (i.e., teacher education, career guidance, basic skills development). Using the panel's recommendations, the new federal legislation was drafted and debated, resulting in the Vocational Education Amendments of 1963, signed into law by President Lyndon B. Johnson. Funding for vocational education was substantially increased (i.e., authorization of $60 million for 1964, rising to $225.5 million in 1967 and each year after that). Attention was shifting from subject matter areas (i.e., agriculture, home economics) to categories of people to be served (i.e, high school, post-high school, handicapped, and disadvantaged). There was increased flexibility in use of funds to meet local needs. New construction of building and facilities (i.e., area vocational schools) and development of new programs were important developments under the act. The sixty-fourth yearbook of the National Society for the Study of Education was again entitled *Vocational Education* (Barlow 1965) and dealt extensively with several of these issues in depth. One of the chapters by Walsh and Seldon (1965), entitled "Vocational Education in the Secondary School," laid out the following principles for planning vocational education:

1. Vocational education should occur as close to the time of application as possible. On the secondary level, vocational courses should be concentrated in eleventh and twelfth grades.
2. There must be sufficient concentration of work in each area to enable the student to develop sufficient competence to hold an entry job in a given occupation upon the completion of the curriculum.
3. A well-planned vocational program integrates vocational education and general education. The vocational development should be built on a sound base of general education.
4. Some diversity of curriculum offerings is needed to provide for individual needs and to give flexibility to the program.
5. All aspects of an occupational area cannot be included in the

> curriculum. Those skills which form the core of the occupation and which are necessary for entry into the occupation should be taught.
>
> 6. Vocational instruction must be geared to the times, preparing the individual to enter the world of work of today and tomorrow. (Walsh and Seldon 1965, 92)

The authors concluded that there needed to be strong interrelationship among the vocational education fields in order to meet the job requirements of the future. Robert Mager's (1962) book *Preparing Instructional Objectives* was in wide use in curriculum development in vocational education. Writing about curriculum in the secondary school and the role of vocational education at about the same time, Trump and Miller (1968) suggested that vocational educators faced four major problems in planning their curriculum: (1) misguided official attitudes (i.e., school administration and faculty have false and distorted ideas about vocational education); (2) the idea that college preparation represents the only real value in education; (3) the difficulty of keeping pace with ever-changing employment needs; and (4) the need to add vitality and integration to work-study programs.

The report of an Advisory Council on Vocational Education set up under the 1963 act to review its impact provided the basis for reauthorization of federal vocational education in 1968. The Council, chaired by Martin W. Essex, Superintendent of Public Instruction for Ohio, made recommendations to strengthen vocational education, including consolidation of all federal vocational education in one act in order to make it more manageable and substantially increasing its funding. The Vocational Education Amendments of 1968 followed the general direction of the 1963 act with increased funding (i.e., total authorization was to increase from $542 million in 1969 to $910 million in 1972). A new provision of the amendments was the establishment of state and national advisory councils on vocational education to advise on direction, curriculum, and accountability.

In 1972 and 1976 additional amendments were made to the Vocational Education Act of 1963, increasing federal funding for vocational education. The 1972 amendments included provisions for consumer and homemaking education, exemplary programs and projects, and a Bureau of Occupational and Adult Education in the U.S. Office of Education. In 1976, the provisions brought attention to the need for increased external involvement in planning vocational education, designation of one state agency to manage vocational education, reduction of sex stereotyping in programs, and increased efforts at vocational guidance and counseling. By this time Evans' (1971) book, ***Foundations of Vocational Education***, was of influence and proposed three major objectives for vocational education: (1) to meet the labor market needs of society, (2) to increase options available to students, and (3) to provide incentives for learning. Criticism of vocational education during this time, exemplified by the report "Work in America" (Special Task Force to the Secretary of Health, Education and Welfare 1972), raised issues of the effectiveness of high school vocational education in terms of occupational placement and cost and the use of federal funds to maintain existing programs, as opposed to stimulating new development.

During the 1970s, career education, advocated by Sidney P. Marland, Jr., the U.S. Commissioner of Education, came into being. Career education (described earlier in this chapter) was to start in the elementary grades and continue after high school, to be integrated into all school subjects, and to prepare people for the world of work. The Office of Education's discretionary resources were used to conduct pilot tests of exemplary career education models. Federal legislation and funding followed during the 1970s to assist states in developing curricula for career education, calling for a state plan for career education, establishing an Office of Career Education in the Office of Education and providing for a National Advisory Council for Career Education, and implementing a national program of career education. However, the career education movement generally lost momentum in the 1980s, and several of its components became a part of vocational education.

In summary, by the late 1970s vocational education had grown substantially in students and funding from its meager start prior to the 1900s (Barlow 1976). By 1978, 19,536,175 students were enrolled, 64 percent in secondary schools. The federal funding level was approximately $413 million (appropriations always fell considerably short of authorizations). State and local funding for vocational education was nearly $6 billion. The federal government was providing $650 million by 1979 (about 9.9 percent of the total). Vocational education was going on throughout the K–12 system, although concentrated in grades 10 through 12, in postsecondary colleges and institutes, and in part-time adult programs. Vocational education in secondary schools was delivered in comprehensive high schools, specialized vocational high schools, and area centers serving several high school districts. The curriculum was still largely subdivided along traditional lines of agriculture, business and office, distributive, health occupations, home economics, and industrial education. Business and office and health occupations education were new areas. Distributive education was moving toward a new name—marketing education. Industrial education was a compromise label, used particularly at the university level, to include a combination of industrial arts, trade, and industrial and technical education. Industrial arts was beginning to examine the desirability of changing its name to industrial technology or technology education. Career education had stimulated the addition of some general vocational education components dealing with vocational development and employability skills. Vocational education had become a commonly identified separate track, along with college preparatory and general, in the high school curriculum. The perception or fact of tracking students into certain kinds of work was a continuing criticism of vocational education (Kantor and Tyack 1982; Oakes 1985; Shor 1987; Tanner and Tanner 1980).

Although the state and local funding contribution to vocational education was considerable, the federal government still had considerable sway and power in setting overall direction, structure, and focus of curriculum in vocational education. Significant impacts of federal legislation were to strengthen vocational education's unique purposes to prepare for work and family responsibilities, rather than to support other areas of instruction in the secondary school, and to focus on occupations requiring less than a college degree for entry, rather than on the full range of occupations. States had assumed a much larger role in developing curriculum guidelines (previously done at the federal level), and local advisory committees, community surveys, and detailed occupational analyses were used as self-correcting, checks and balances mechanisms to tailor the curriculum of local schools to the surrounding community. Vocational education was accepted in the curriculum as a means to "democratize" secondary schools by serving the needs, interests, and abilities of all students in a given geographic area.

REVIEW OF CURRENT CURRICULAR RESEARCH

The review that follows picks up from where the historical development of vocational education and its subfields, described in the previous section, leaves off, and focuses on the period from the mid-1970s to the present. Within subsections on each subfield of vocational education, the review and synthesis reports published by the National Center for Research in Vocational Education will be used as primary source documents for the time periods for which they are available. Generally, these reports include a chapter or section devoted to curricular research, sometimes reviewing several hundred studies. Among the studies cited in these reports, most attention will be given to the more comprehensive studies that have had substantial impact on the field.

Agricultural Education

In the field of agricultural education the major reviews and syntheses of research were authored by L. H. Newcomb at the Ohio State University (1978) and J. H. Lee at Mississippi State University (1985). Newcomb reviewed studies for the period 1969 to 1978 and grouped those related to curriculum into the categories of task analysis, core curriculum, development of curriculum guides, evaluation of curriculum, and determination of employment needs. Significant task analysis studies done during this period were for mechanical competencies for skilled and semiskilled laborers in horticulture, agribusiness (see Berkey, Drake, and Legacy 1972), agricultural mechanics, and retail feed (Hohenhaus 1976) occupations. On a less technical level, task analysis was used to develop a common core of basic skills needed across agribusiness and natural resource occupations (McCracken and Yoder 1975) and for leadership and personal development (Hampson, Newcomb, and McCracken 1977). The areas of leadership and personal development identified were categorized as follows: (1) leading individuals and groups, (2) developing good work habits, (3) participating in social activities, (4) participating in committees and groups, (5) participating in professional business and civic organizations, (6) managing financial resources, (7) developing communications skills, (8) developing citizen skills, and (9) developing personal skills.

The 1970s was also a time when the curricular research in agricultural education began to seek a core curriculum that could be common across agricultural education programs in a state or region. McCracken and Yoder (1975) concluded that use of local advisory committees, task inventories, and community surveys in planning the agricultural education curriculum for a specific school mitigated against development of a core curriculum. Rather, these strategies focused on specific skill requirements for particular occupations and not on more general skills and exploratory experiences. In their study to develop a common core of basic skills across agricultural occupation, they identified 48 occupational tasks that could serve as the basis for a common core in agricultural education. These tasks were grouped under the headings performing office work, following general safety precautions, maintaining equipment, using and maintaining hand and power tools, operating equipment and vehicles, and maintaining buildings and structures. The tasks placed in these categories were selected from over 2,500 tasks needed in the occupations studied. The actual number of tasks that were identified as common (48) and their description led McCracken and Yoder to conclude that (1) the common core tasks represent only a small section of tasks needed for success in agricultural occupations, and (2) few of the common tasks are specifically agricultural in nature. Studies by Horner, Zikmund, and Dillon (1970) and Snowden and McMinn (1971) also sought to identify common areas of subject matter among agricultural occupations. Areas so identified included business management, taxes, credit, marketing, soils, electricity, insurance, accounting, livestock, farm machinery, welding, tractor and other power, agricultural economics, sales, and first aid.

Many curriculum guides were developed during this period, and they varied in the formality of research procedures used in the development process. A major study using more formal development and testing procedures was conducted by Householder, McGhee, and Roediger (1976) for major occupational categories within agribusiness, natural resources, and environmental protection. They developed 10 curriculum guides containing administrative directions and instructional units for use by classroom teachers. Guides were developed based on identification of current and emerging occupations in the above-cited areas and analysis of other existing curriculum guides. Field-test procedures for the guides included monitoring policies and procedures for dissemination of the guides, teachers' opinion of the guides, and student achievement using criterion-referenced tests. While teachers valued the guides for help in selecting teaching objectives, content, and student activities, few significant relationships were found between use of the guides and achievement test performance.

In the category of curriculum evaluation, Newcomb (1978) cites the above study by Householder, McGhee, and Roediger as being well designed and rigorous in approach. He concludes, "There is a need for more systematic and rigorous evaluation of curriculum efforts in agricultural education, aimed at student performance and/or employee performance" (19). Studies looking at more general trends in the agricultural education curriculum during this time concluded that junior high agriculture courses had few exploratory occupational objectives (Dillon 1970) and that agricultural production (farming) was declining as a subject matter area in agricultural programs.

The last curriculum research category used by Newcomb (1978) relates to studies that sought to provide labor market information about agricultural occupations. Few studies were reported, and he concluded that insufficient data exist for sound planning and accountability of agricultural education from the perspective of labor market needs. A major study of labor market needs for agricultural occupations was designed during this period by the U.S. Office of Education, but unfortunately was not funded (McClay 1978).

Lee (1985) reviewed studies in agricultural education for the period 1978 to 1984. In contrast to Newcomb, Lee organizes the studies relating to curriculum into the categories of major thrusts, secondary curriculum, postsecondary curriculum, and adult/young adult curriculum. Only the first two are included here. In the category of major curricular thrusts, the work by Iowa State University in developing Standards for Quality Vocational Programs in Agricultural/Agribusiness Education (1977), sponsored by the U.S. Office of Education, is particularly noted. An initial draft of the standards was developed at a national meeting of agricultural educators from across the country. These standards were then validated separately in each of 46 states by seeking reactions from those with expertise and experience in various areas and levels of agricultural education. Standards were developed that are common to all areas of agricultural education as well as to each instructional cluster of programs (i.e., production agriculture, agricultural supplies and services, agricultural mechanics, agricultural products, ornamental horticulture, agricultural resources, and forestry). A sample of the standards common to all programs and related to curriculum include:

- Validated competencies, needed by students for entry and advancement in employment, are used in developing objectives for the instructional program.
- Students enrolled in vocational education in agriculture/agribusiness are also enrolled in other appropriate courses, including science, mathematics, social science, and oral and written communications.
- The instructional program is articulated with other local secondary, postsecondary, and 4-year programs in agriculture/agribusiness.
- Provisions are made to accommodate students with physical handicaps or other special educational needs.
- Students are engaged in supervised occupational experience programs that are related to their occupational objectives and are appropriate in light of their ability and place of residence.
- Leadership development activities are an integral part of the instructional program.

At about the same time, McClay (1978) was directing a nation-wide study designed to (1) identify the essential agricultural competencies needed for entry employment and advancement in the major agriculture and agribusiness occupations and (2) validate the importance of identified competencies for each occupation. This work was completed for 59 production agriculture and 139 agribusiness occupations. The information for each occupation includes a job description, job competencies and subcompetencies, ratings of competency importance, and descriptions of the group surveyed and the agency conducting the survey. Teacher educators in agricultural education in 40 colleges and universities across the country did most of the survey work. Competency was defined as "behavioral characteristics of knowledge, skills, attitudes and judgment generally required for the successful performance of a task(s) or the sum total of attitudes, knowledge, and skills which enable a person to perform efficiently and effectively in a given function" (7). According to Lee (1985), "The findings of this study have had substantive impact on programming and curriculum in vocational-technical agricultural education in the United States" (3) as evidenced by citations in curriculum guides, in-service activities, and professional literature.

Consistent with the study by McClay (1978) noted above, other curriculum research in agricultural education focused on relating subject matter more closely to the trends and practices in the agricultural industry. For example, Hogue, Carnes, and Briers (1981) identified more than 150 new and emerging occupations related to agriculture that should be taken account of in curriculum development. Comprehensive job descriptions were developed for occupations such as agricultural computer operator, horticultural supply clerk, smoke jumper, and seafood butcher. In keeping with this trend of relating curriculum content more closely to industrial practice, Baggett (1982) proposed an eight-stage model for using information from agriculture program graduates and the agriculture industry to assure a relevant curriculum.

A second approach to curriculum research gaining attention during this time was the use of local community needs assessments relating to agriculture as a basis for curriculum review. Parmley, Wilton, and Bender (1981), in studying school districts in Kansas that did not have high school agriculture programs, found that while rural residents and agribusiness favored adding programs, school administrators were unfavorable for reasons of facilities, finances, student interest, and educational need. An example of a community needs assessment for local districts is provided by Effendi (1984) in West Virginia.

The curriculum research noted by Lee (1985) in the category of secondary curriculum again focuses on competencies needed in agricultural occupations. Some of the clusters of agricultural occupations addressed include agricultural mechanics (Maday 1984), ornamental horticulture and feed, seed, and grain (Bigo 1979). Specific occupations were also examined for their required competencies, for example, dairy farm managers (Stenzel 1979) and agricultural mechanics in retail dealerships (Kesler 1984). During this time, the Vocational-Technical Consortium of States (V-TECS) also began its detailed and extensive work to develop competency lists for occupations addressed by vocational education, including agriculture. The work by Hamilton (1983) for farm machinery set-up mechanics and delivery persons is a good example.

As in previous periods, several states developed curriculum guides during the period 1978 to 1984, often as a basis for a core curriculum in agriculture. Examples of states that had completed or had ongoing research in this area were Illinois (Russel and Courson 1984), Louisiana (Burnett 1983), Michigan (Karelse and Olson 1983), Texas (Brown 1978), and Oklahoma (Hatcher, Frazier, and Miller 1978). Lee concludes his review of secondary curriculum research in agriculture with the admonition, "A weakness in close adherence to competency studies in curriculum development is the lack of 'future orientation.' Competency studies are time bound" (1985, 4).

As one moves to the most recent curricular research in agricultural education, the major study of consideration is the work by the Committee on Agricultural Education of the National Academy of Science (1988). This study, guided by an interdisciplinary team of agricultural scholars, educational scholars, and representatives of schools and agricultural associations, was initiated in 1985 "because of concerns about the declining profitability and international competitiveness of American Agriculture, as well as concerns about declining enrollments, instructional content, and quality in agricultural education programs" (v). With these concerns in mind, the committee drew on expert testimony, reports, field visits, and open hearings to propose goals, subject matter, and policy changes for instruction in agriculture for elementary and secondary schools. The committee concluded: (1) instruction in agriculture must become more than vocational agriculture, and (2) major changes are needed in vocational agriculture. The response to the first conclusion was to introduce the idea of "agricultural literacy," which focuses on education "about" agriculture. Agricultural literacy education for all students is to start in kindergarten and extend through the high school grades. Instruction could occur in separate agriculture courses, but most instruction should be integrated into existing courses in every subject matter area. The goal should be to develop agriculturally literate persons, meaning they have an understanding of the food and fiber system, including its history and current economic, social, and environmental significance. On the other hand, vocational agriculture or education "in" agriculture should retain its focus of preparing for agricultural work, but with a much broader concept of agricultural work and the necessary preparation for that work. In addition to production agriculture, agricultural work is to include agribusiness management and marketing; agricultural research and engineering; food science, processing, and retailing; banking; education; landscape architecture; and urban planning. Agriculture education should be viewed as preparation for effective study of agriculture in postsecondary schools and colleges for many students. While retaining the three basic components of the agricultural education curriculum (i.e., classroom and laboratory instruction, supervised occupational experience, and participation in a youth organization [the Future Farmers of America or FFA]), each of these components should be broadened to reflect the changing nature of agricultural work.

Other curricular research during this most recent time period began to focus on themes and issues that were affecting the secondary school curriculum more generally. For example, Anderson and Boddy (1985) focused on identifying the science (i.e., biology, chemistry, and physics) skills taught in vocational programs, including agriculture, and the importance vocational teachers attached to students possessing science skills on entering and leaving agricultural education programs in secondary schools. The conclusions suggest that the vocational agriculture curriculum consisted of a relatively high number of science skills and that teachers attached importance to the students' possession of science skills.

Relating to another more general curricular theme, Peuse and Swanson (1980) examined factors affecting teacher acceptance of a new instructional unit in international agriculture in Illinois. Earlier work by Field (1976) in Minnesota considered the receptiveness and appropriateness of increasing the awareness and sensitivity of students of agricultural programs to global perspectives and issues relating to agriculture. He found that (1) agriculture students are generally lacking in awareness of and sensitivity to international agricultural issues; (2) agricultural teachers are extremely receptive to instructional materials on the topic and feel it is an appropriate aspect of the curriculum (particularly its technical skill dimensions); and (3) instructors who emphasize the topic significantly affect their students' future involvement in international work.

In summary, the curricular research in agricultural education from the mid-1970s to the present makes it clear that major efforts have been made to base the curriculum on the specific technical knowledge and skills needed for success in agricultural work. Surrounding this focus were studies to provide labor market information about agricultural work (i.e., employment opportunities, needed educational levels, new and emerging occupational titles) and nontechnical skill needs such as leadership and personal abilities. Statewide core-curriculum-guide development coincided with efforts to develop basic or common skills across a wide variety of occupations making up agricultural work. However, rigorous testings of these curriculum guides in terms of student performance were few and, where done, did not produce expected results. Standards for quality agricultural education programs were developed by the profession and were used to guide program planning and review in many states. More recently, curriculum research attention has shifted to examining the science content of agricultural courses and the role of agricultural education in international education. Ending this period was a major review of secondary school agricultural education across the United States, which recommended that the goals of agricultural education be broadened to include (1) agricultural literacy (education about agriculture) for all students in all grade levels and (2) vocational agriculture (education in agriculture), to encompass a wider array of agricultural work and all occupational levels. Curricular research questions that may merit study in the future for agricultural education include (1) What is the meaning of "agricultural literacy" and "vocational agriculture" we have moved from the rural economy of the 1700s to the 1990s when only 3 percent of the American people are farmers? (2) What special curricular challenges are posed in the shift of emphasis from family farming to agribusiness? (3) As the agriculture industry increasingly becomes a global enterprise, what changes are essential in agricultural education?

Business Education

The only review and synthesis of research in business and office education completed after the mid-1970s was done by Judith J. Lambrecht (University of Minnesota–Minneapolis), Marianne J. D'Onofrio (Utah State University), L. Eugene Jones (Northeast Louisiana University), and Patricia A. Merrier (University of Minnesota–Duluth) (1981). They reviewed 1,129 studies for the period 1968 to 1980. The review was organized around the major content areas of business and office education, bookkeeping and accounting, basic business education, communications, business mathematics, business data processing, shorthand and transcription, typing, and word processing.

Studies focused on the content of bookkeeping and accounting used sources such as (1) competency or task analysis, (2) technology applications, (3) teacher opinions, (4) worker opinions, (5) textbooks, and (6) professional literature and reports. The preponderance of studies were competency or task analyses—for example, addressing the data processing duties of bookkeeping and accounting jobs. Examples of other sources of content were highlighted in addressing the changing nature of mechanical equipment for processing financial information, in securing the opinions of college accounting instructors and business representatives concerning electronic accounting concepts, and in identifying difficult bookkeeping topics.

In the content area of basic business education, two studies dealt across the area with textbook analysis to identify the social responsibility content of basic high school business texts and categories of content found in general business, economics, consumer economics, business principles, and business law textbooks. Other studies dealt with the subarea of basic business. For example, among the curriculum-related topics investigated were appropriate content about the code of canon law, legal concepts important to consumers and citizens, and legal issues. In the subarea of personal finance, the topic of personal finance competencies needed by high school graduates as judged by business, home economics, mathematics, and social studies teachers and business representatives was investigated. In the teaching of economics, research focused on the economic concepts important to understanding American business and economic concepts judged important by consumer-related organizations. Teaching of economic concepts in the context of a variety of subject areas was also investigated during this time; the subject matter areas included typing, U.S. history, social studies, and community-based economic education. Competency studies were completed in the area of consumer education, often involving both business and consumer homemaking teachers. Studies of specific areas within consumer education illustrating the nature of the content focused on consumer problems of unmarried high school graduates 4 years after leaving school, personal income aspects of consuming, problems of home buying, management problems of bankrupt households, and consumer awareness rights. One of the conclusions reached by Lambrecht et al. (1981) was that curricular research was needed in the basic business areas to structure, sequence, and interrelate the various subareas.

In the business and office content area of communications, studies focused on communications competencies needed for specific business and office work and issues in particular types of communications content. Competency studies focused on writing communications by secretaries, clerical workers, and paralegal workers and reading in office jobs. Issues investigated in particular areas of communications content included oral communications effectiveness in business, English usage expressions, guidelines for written job applications, writing problems in business offices, writing skills of accountants, types of letters written by business managers, changes in letter-writing procedures with word processing, organizational patterns of letters, report writing, and nonverbal communications.

Again, in the content area of business mathematics, competency studies were the major focus of curricular research. These studies addressed business mathematics competencies needed in the fields of accounting, business administration, and secretarial science; entry-level jobs in retailing; and beginning versus experienced business workers.

Perhaps the emergence of data processing as a content area of business education accounts for the large numbers of curricular studies in this area between 1968 and 1980. Lambrecht et al. (1981) categorized the studies into three groups based on the research approach used: (1) contact with industry users or employed data processing personnel; (2) contrast of competencies used by employed workers versus content of data processing programs; and (3) examination of current data processing programs. Occupations included in the studies were data processing managers, systems analysts, programmers, computer operators, data entry operators, and clerks. Studies with potentially unique implications included changes in job requirements for data

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processing from 1969 to 1973; data processing jobs attainable with high school training; data processing skills appropriate for all high school students: qualifications, job distinctions, and career ladders in computer production operations; contrast of secondary and postsecondary data processing programs; business computer programming languages; and the data processing program requirements for special groups of students.

Studies in the content area of typewriting involved analysis of business letters to determine structure and design, contrast of office production materials with materials in high school typing textbooks, typing in insurance offices, work performed by beginning office workers, and teaching other content (i.e., economic concepts, reading) in typing classes. In the area of word processing, a very large number of studies were also completed between 1968 and 1980. Lambrecht et al. (1981) classified the curricular research by source of implications for content under the headings job practices in word processing installations; entry-level qualifications, tasks, and/or competencies; and job satisfaction of word processing personnel. As examples, Scriven et al. (1981) reported on the national Delta Pi Epsilon (professional fraternity in business education) survey of current practices in word processing installations across the United States. The studies of entry-level qualifications concluded that English, secretarial, and human relations skills were needed for entry-level word processing jobs. Competency studies revealed that the skills of typing from handwritten, typed, and rough draft copy; applying English and grammar skills; following directions and listening; meeting and greeting people; answering telephones; and using a filing system were important for word processing jobs (Scriven, Holley, Wagoner, and Brown 1981). Based on studies of this kind, Lambrecht, D'Onofrio, Jones, and Merrier (1981) summarize the implications for business education curricula by suggesting that programs should be teaching the following content relating to word processing: grammar and transcription, typing, listening and following directions, using a filing system, scheduling and screening appointments, answering telephone calls, arranging reservations, and composing letters.

At the beginning of the 1980s, the *National Business Education Yearbook* (Newman and Caton 1981) focused on updating the content of secondary business education. The trends noted as affecting the business education curriculum were the career education movement, technology impacts, socioeconomic factors (i.e., demographics, labor force participation, resource limits, problems of youth), relation of accounting and data processing, and attention to entrepreneurship. It was recommended that need assessments conducted to provide a basis for curriculum change draw on the knowledge of local school administrators and teachers, advisory committees with representatives of business, local surveys, and published reports. Separate chapters in the yearbook addressed meeting the needs of the following groups with special needs: physically handicapped; economically, culturally, and educationally disadvantaged; nontraditional-sex students; and the gifted. Following from the review of curricular research during the 1970s, it seems appropriate that the yearbook chapter dealing specifically with general curricular content focused on competency-based business education as the best way to assure that instruction is clear, relevant, accountable, and efficient.

Writing in the *International Encyclopedia of Education*, Hopkins and Lambrecht (1985) describe the curriculum development process in business education as involving two basic approaches: discipline based and competency based. The discipline-based approach is described as involving an analysis of the body of knowledge regarding a particular instructional area and treating it as fairly fixed regardless of where, when, and to whom it is taught. This approach is suggested as being used most often in accounting, economics, and management. Curriculum development efforts exemplifying this approach are (1) the *Master Curriculum Guide in Teaching Economics for the Nation's Schools* (Hansen, Back, Calderwood, and Sanders 1977) and (2) *DPMA Model Curriculum for Undergraduate Computer Information Systems Education* (Adams and Athey 1981). The competency-based approach draws directly on analyses of business work, with many illustrations already having been given for business education.

During the period 1984 to 1987 the National Business Education Association (1987) conducted an extensive project to codify the entire business education curriculum, K–14, in competency format. The final report, entitled *Database of Competencies for Business Curriculum Development, K–14*, lists the proficiency standards for entry-level work in business offices. Validation was done by a task force of some 50 educators from local schools, teacher education institutions, and state education agencies and reviewed by the Education, Employment and Training Committee of the Chamber of Commerce of the United States. Competencies are organized for elementary, middle/junior high, and secondary and postsecondary business education levels. For the elementary and middle/junior high levels, the categories of content are keyboarding, basic economics, computer literacy, career and business exploration, and job attitude and human relations skills. For the secondary and postsecondary levels, the categories of content are more extensive, involving basic skills and core competencies (information skills; personal development skills; economic, consumer, and business concepts skills; technology skills) and specific job skills (i.e., processing text, processing data, accounting and record keeping, entrepreneurship). Each of the hundreds of competencies included is accompanied by a proficiency standard that specifies the conditions under which the student is to perform, what the student is to be able to do, and the minimum acceptable level of proficiency expected. This guide is to be used as a basic reference in developing business education curriculum for specific situations.

Examining the policy statements of the Policies Commission for Business and Economic Education (1989) (which has representatives from the three major business education organizations—Business Education Division of American

Vocational Association, Delta Pi Epsilon, and the National Business Education Association) for the 1980s from a curricular perspective, one sees attention to teaching basic skills, role of student organizations, linkings with business, and general education components of business education. Separate policy statements also address the following content areas of business education: word processing, business data processing, personal finance, computer literacy, keyboarding, business communications, and entrepreneurship. The policy statement about the role of business education in the comprehensive high school (1985) defines the goals of business education as being to:

1. Educate individuals for and about business.
2. Provide opportunities for nonbusiness students to acquire business knowledge, skills, and attitudes needed to function effectively in their careers.
3. Provide a continuous program of planned learning experiences designed to help students effectively fulfill three roles:
   a. Make mature, intelligent socioeconomic decisions as citizens.
   b. Produce and distribute goods and services as workers.
   c. Use the results of production as consumers.
4. Provide career information that will help students relate their interests, needs, and abilities to occupational opportunities in business. (60)

These basic goals are affirmed by Lambrecht (1987) as still representing viable reasons for business education in the secondary school curriculum. However, as this section was being written, one of the leading scholars in business education, Padamaker M. Sapre (1989), called for reconceptualization of the field of business education, including changing the field's name (although he did not suggest a new name). One of the emerging trends related to the area of office education is the changing of its name to "administrative support occupations" education (for example, see Flood 1989). And a review of the current state of business education (O'Neil 1989) suggests the following topics are gaining attention: (1) keyboarding as a new basic skill, (2) management training/entrepreneurship, and (3) closer ties with business. As keyboarding takes on the characteristics of a basic skill, it is increasingly viewed as being appropriately taught at the elementary school level, resulting in considerable rethinking of the curricular responsibilities of business education in the secondary school.

In summary, the current curricular research in business education is predominantly competency based and extensive in detailed examination of all aspects of business work. From a series of more specific studies, the business education profession moved to a comprehensive, nation-wide study of competencies important to business work as a consistent and cohesive basis for curriculum development. Research has affirmed the general education and vocational education purposes of business education. The ramifications of changing social, economic, technological, and educational issues and trends on the business education curriculum were specifically addressed through a series of professional policy statements. Some questions that might guide future research in business education are (1) What are the implications for business education of the dramatic shift from a goods producing to a service economy? (2) What should business education do about the impact of technology and organizational restructuring on the work life of office workers? (3) Should business and office education (the latter now called administrative support occupations) remain components of a single enterprise?

Home Economics Education

Two reviews and syntheses of research in home economics education cover the periods 1970–1979 (Nelson 1979) and 1979–1985 (Redick and Gritzmacher 1986). Like the reviews of the literature in the other subfields of vocational education, the reviews and syntheses in home economics do not use consistent criteria for inclusion and exclusion of curriculum research or employ the same categories of curriculum research from edition to edition. These inconsistencies make it difficult to observe patterns in the development of curriculum research in home economics and the other subfields of vocational education. The 1979 review and synthesis of the research by Helen Y. Nelson contains approximately 120 citations, whereas the number of references cited in the Redick and Gritzmacher (1986) review is nearly 275.

Nelson's review and synthesis covers the following topics: consumer homemaking education, occupational home economics programs in the junior and senior high schools, postsecondary and outreach programs for adults, area vocational schools, and home economics teacher education. Of these categories only the first two are included here. The review

> focused on those studies investigating significant problems that tested theoretically derived hypotheses, those that approached problems in an innovative manner, those that illustrated a continuity of research, those that tended to conceptualize problems, and those that tested experimental or quasi-experimental designs. (1979, 6)

Within the chapter on curriculum, Nelson reported on four types of curriculum research relevant to K–12 home economics education: relation of philosophic position to curriculum beliefs, curriculum for consumer-homemaker programs, curriculum for occupational home economics, and curriculum for learners with special needs.

Nelson chose Swan's study (1975) to address the issue of the relation of philosophic beliefs to curriculum beliefs. Seeing evidence of dissension among home economists about both philosophy and curriculum beliefs in the four different subject matter fields of the College and University Professional Section of the American Home Economics Association, that is, child development/family relations, teacher education, textiles and clothing, and food and nutrition, Swan's purpose was "to identify the nature and range of philosophical beliefs, to examine whether or not these beliefs could be classified as belonging to one of two philosophical positions, and to check for consistency between expressed philosophy and espoused curriculum" (Nelson 1979, 73).

The two philosophical categories in Swan's study were Position I, which emphasized the primacy of developing self-fulfilled human beings, and Position II, which emphasized attainment of knowledge as an end in and of itself. Position I in curriculum beliefs favors student- or experience-centered curriculum, while Position II favors traditional subject-centered, teacher-directed curriculum. ANOVA results established significant differences among the four teaching areas, although all groups tended to gravitate toward Position I. Child development and family relations faculty were more strongly attracted to Position I, however, while those from home economics teacher education, textiles and clothing, and food and nutrition ranked behind them in the order given. There were high correlations between philosophy of education and curriculum, indicating the importance of philosophy in determining practice.

Nelson discusses several exemplary curriculum research studies in her section on curriculum for consumer homemaking. Of these studies, Murphy's (1974) development of a four-part guide, *Consumer Education Curriculum Modules: A Spiral Process Approach*, is the most significant, both because the "spiral process" was innovative and because it brought some order to the rapidly expanding knowledge in consumer education.

Murphy designed four modules for use with learners ranging from ninth graders to adults. A six-step spiral approach was used to provide repeated exposure to the processes of becoming a critical consumer at different levels of complexity in both class and nonclass settings. The four processes of becoming a critical consumer are acquiring information, exploring values, making decisions, and taking action. In addition to providing learners with an opportunity to move through the spiral at least to some extent at their own pace, the spiral curriculum provided teachers with more flexibility than usual in "responding to the changing interests and increasing ability of learners to deal with abstractions" (Nelson 1979, 68). The modules were tested on 4,873 learners. Over half of the sample scored higher on post- than on premodule assessment.

The other three studies that Nelson discussed in the consumer homemaking section of her literature review were Vaughn's (1974) development of a list of conceptual statements appropriate for use in designing curricula for grades 5 to 8, Ford's (1976) development of miniunits for coeducational middle school classes that were purportedly free of sex bias, and Fassett's (1977) planning paper for consumer homemaking teachers to use with Future Homemakers of America groups.

Under the category of occupational home economics curriculum Nelson discusses only one study, Beavers' (1979) national study of standards for curriculum development in textiles and clothing. Since Beavers' study had a postsecondary focus, it will not be discussed here except to say that its lattice-ladder approach to curriculum has been an influential and useful approach to curriculum development for the last 15 years. The lattice-ladder approach provides "stop-out points" that give people the opportunity to gain work experience before receiving further training. Other occupational home economics curricula from this period continued, for the most part, the competency-based approaches that have been widely used for many years in vocational education curricula.

The final category of Nelson's review, which dealt with curricula developed for K–12, is the section on curriculum for learners with special needs. She discusses two studies of significance to K–12 curriculum developers, one by Nelson, Lowe, and Dalrymple (1975) on preparing disadvantaged students for homemaker and wage-earner roles through a three-state study of the effects of six different curricular approaches on the self-concepts of disadvantaged students in 12 treatment groups and another by Dougherty (1977), who solicited contributions from vocational home economics educators in Wisconsin and then compiled a volume of program procedures, educational strategies, and teaching materials useful in programs for the disadvantaged.

Redick and Gritzmacher's (1986) review and synthesis does not include a list of formal topics covered within the larger field of home economics (e.g., occupational home economics). Instead, their review covers eight aspects of home economics education, including the nature, content, and structure of current curriculum research. The selection criteria included documented validity and reliability of measurement; appropriateness of observation and analysis; quality of sampling design and sample response rate; innovative or interdisciplinary approach; and critical or emerging subject matter. Regarding their decision to include innovative approaches to curriculum development, Redick and Gritzmacher write:

> While most recent curriculum research continues to use the empirical-analytical research to explain or predict the nature, content, and structure of home economics education, significant studies have been done using interpretive and critical science research frameworks. Researchers have uncovered meanings underlying curriculum decisions and have suggested new possibilities for home economics curriculum. (viii)

In their section on the nature of home economics curriculum, Redick and Gritzmacher cite approximately 25 studies, which fall into several types. One type of study they review is the critique of home economics curriculum of which Eyestone's study (1982) of parenthood education is an example. Eyestone examined a selection of parenthood education curriculum guides for secondary students and found them to be something of a conceptual hodgepodge, teaching a variety of different parenthood concepts with different philosophical implications.

A second type of research into the nature of home economics curriculum reviewed by Redick and Gritzmacher addresses the normative question: What should be the nature of home economics education? Based on a conceptual framework model adapted from Brown (1980, 1985) and Brown and Paolucci (1979), Kister (1981) is one of several researchers between 1979 and 1985 who used the critical science mode of inquiry and the dialectical reasoning method as conceptual tools by which to make explicit the assumptions, aims, values, and inconsistencies of a given curriculum. Kister examined the homemaking tasks identified through occupational analysis done by Abt, Lewis, Barnes, and Geiger (1968) and concluded that empirical-rational, hermeneutic, and critical science perspectives should guide home economics curriculum development. Baldwin (1984), in a study related to Kister's analysis, found that the models "were not based on adequately established theoretical frameworks" (Redick and Gritzmacher 1986, 13–14).

A third type of study within the section on home economics curriculum is the common type of curriculum study that identifies standards and content for specific home economics programs such as nutrition education or clothing and textiles. One innovative study within this general type was that done by MacCleave-Frazier and Murray (1983) to reconceptualize clothing curriculum in consumer homemaking programs. Using status and qualitative research approaches, they organized illustrative curriculum materials around "practical problems and questions of families" and "appropriate systems of family action" (Redick and Gritzmacher 1986, 14).

The fourth and last subtype of curriculum research to be carried out under the general heading of the nature of the home economics curriculum is a new arrival in the field. Redick and Gritzmacher (1986) write: "Besides home economics content, mathematics, science, and thinking processes have also become the focus of home economics curriculum research" (14), and they cite several examples of studies about such topics as using formal reasoning in analyzing books and ads for misleading content (Contento 1981; Franz, MacDonald, and Grocott 1985).

Under the category "content of home economics curriculum," Redick and Gritzmacher cite about a dozen examples of recent research into the content of elementary and secondary home economics classes. Of these, the most interesting, although discouraging, results were found by Bakalars (1980) and Bakalars and Petrich (1983), who studied the family life concepts that were taught by elementary teachers. These concepts are structured around (1) learning about self and others, (2) family and society interaction, (3) developing as a family member, and (4) adolescence, "yet none of the factors was taught to a great extent and factors two and four [as well as content on human sexual development] were seldom or never taught" (Redick and Gritzmacher 1986, 15).

Redick and Gritzmacher's third category, "structure of home economics curriculum," and the fourth category, "factors affecting curriculum content and design," present findings from 8 and 15 studies, respectively. Like the first two sections, the last two sections stress the complexity of curriculum development and the importance of testing new or, at least, relatively untested research methodologies and curriculum development principles such as integration of home economics concepts into non–home economics curricula, imaging, focus groups, content analysis, and tape-recorded dialogue.

Since 1985, the theme of accelerating the pace of vocational home economics curriculum development within general home economics curriculum development has taken on strength. Kister (1989), among others, argues that faltering families with increasingly diverse structures and worker shortages in the service sector are two important reasons for increased attention to vocational home economics. Kister discusses a study of working parents (Burden and Googins 1985), which shows that, while 86 percent rate their job performance as good or unusually good, only 62 percent rated their family performance that high. Kister reminds the reader that "strengthening families is inherently the mission of vocational home economics" and points out that "the vulnerability of families is clearly an acute social problem" (Kister 1989, 35).

Although it has not yet showed up in the reviews and syntheses of the research literature, mostly because it is so new, another theme in the home economics curriculum literature of the last 10 years is entrepreneurship education. One modest and enthusiastic study from Montana is typical of studies in this field. The researchers (Goetting and Muggli 1988) searched out 22 "Made in Montana" entrepreneurial home economists, all women, and surveyed them about the nature of their business, the resources needed to start the business, the relationship of their home economics background to their business, and their future plans. The Montana Home Economics Association will continue to seek out home economist entrepreneurs and will ask those identified to serve on discussion panels that focus on starting one's own business and to serve as mentors for other entrepreneurial home economists. Many observers believe that entrepreneurial education is an important dimension of vocational education and that the informal information gathering and networking of the 1980s will lead to the development of formal research and curriculum research at K–12 as well as postsecondary levels in the 1990s.

A third and final theme of the most recent research in home economics curriculum continues the interest first noted in the 1979–1985 period in new conceptual models. A study by Weade and Gritzmacher (1987) developed a conceptual model to test the relationship between personality type preferences, as measured by the Myers-Briggs Type Indicator, and curriculum design preferences, as measured by a curriculum preference survey developed by the authors. Like Swan's somewhat similar attempt (1975) to study the relationship of philosophic beliefs to curriculum beliefs, the results of Weade and Gritzmacher's study are complex and mixed.

In summary, the story of home economics education curriculum development in the 1970s and 1980s is one of both broadening and deepening of the field. One way that the broadening of the home economics education curriculum is evidenced is in the expansion of home economics curricular offerings to increasingly diverse and often quite specialized audiences—for example, teen parents, displaced homemakers, single parents, and bilingual students of all ages. Another indication of the broadening of the field may be seen in the increasing emphasis on expanding the theoretical base and methodological tools of the field. There was by the end of the 1980s an impressive body of curriculum research using interpretive and critical science perspectives, concepts, and tools. A third example of the broadening of the home economics education mission is the expansion of curriculum content to include such topics as entrepreneurial education, development education, expanded consumer economics offerings, domestic and sexual abuse, AIDS education, work/family issues, and various equity topics.

Evidence of the deepening of home economics curricula can be found in the attempts of the field as a whole to develop curriculum development standards in the subfields of home economics education, to critique curricula in some subfields in order to assess the lack of clearly stated assumptions and other conceptual shortcomings, and to use both more innovative and more rigorous curriculum development approaches, such as the lattice-ladder and cluster curricular approaches imported into home economics from other educational subdisciplines.

Several important issues focusing on the philosophy of the K–12 home economics curriculum are raised perennially in the field. While there is no disagreement about the expansion of the curriculum into new areas, there are those who say that this expansion is more driven by the fluctuating and faddish demands of the marketplace than by thoughtful discussion and planning by home economists.

An issue related to the scope of the curriculum is the ongoing discussion about the nature and purpose of home economics. A strong and articulate minority within the field has argued for a broader and more complex understanding of the mission since the Lake Placid Conferences at the end of the 19th and beginning of the 20th centuries. The most influential proponents of this perspective are Brown and Paolucci (1979), who wrote:

> The mission of home economics is to enable families, both as individual units and generally as a social institution, to build and maintain systems of action which lead (1) to maturing in individual self-formation and (2) to enlightened, cooperative participation in the critique and formulation of social goals and means for accomplishing them. (23)

In a similar vein, Brown (1985) expressed concern that home economics has become "limited" through "the self-imposed restriction growing out of the ideology of science and technology" (928–929). The issues raised by Brown and Paolucci (1979) and Brown (1985) are important. Should the field take Brown and Paolucci's definition more seriously in creating K–12 curricula? Is the orientation now dominant in the field the best one by which to help develop family members to become autonomous moral agents?

Industrial Education

The two reviews and syntheses of the research literature in the field of industrial education were written by Dyrenfurth and Householder in 1979 to cover the period 1970–1979 and by McCrory in 1987 to cover the period 1980–1986. Like the other reviews and syntheses in the subfields of vocational education, these two reviews are very different from each other in focus. A separate review in trade and industrial education written by Finch in 1983 focuses on research published between 1977 and 1982 but includes other research published between 1969 and 1977 or even earlier.

Because the Dyrenfurth and Householder (1979) review is so lengthy and detailed, the research literature they discussed will only be highlighted here by extrapolating their general themes. Dyrenfurth and Householder subdivided their discussion of industrial arts curriculum into several major categories, including comprehensive efforts, curriculum processes and analyses, industry-education analyses, instructional units, and Industrial Arts Curriculum Project (IACP) (38). Under comprehensive efforts, one theme the authors identified is a discussion in the industrial arts field of the desirability of a uniform nation-wide industrial arts curriculum. Given the large-scale curriculum projects that began in the late 1950s and gathered momentum in the 1960s, it is not surprising that Carter (1970) decided to survey industrial arts teachers and administrators at all levels about the idea of a national curriculum. The respondents did not favor the idea, but they did advocate establishing a "common core." Other comprehensive curriculum research of the period established a widespread approval for "articulation" of various sorts: between elementary and junior high school curricula, between locally developed secondary curricula and state curricula, and so forth.

Another theme closely connected to the issues of curriculum consolidation and articulation was the role of state curriculum guides. Dyrenfurth and Householder report the development of several different types of these guides and the creation of survey instruments to query industrial educators about their utility and popularity.

Under the category "curriculum processes," Dyrenfurth and Householder begin with a discussion of DeVore's major contribution of 1968, ***Structure and Content Foundations for Curriculum Development***, a work that, among other things, "laid the foundation for the case of the technology education thrust" (Dyrenfurth and Householder 1979, 40). DeVore's publication led to numerous studies in the 1970s of such curriculum processes as occupational analysis, criterion-referenced curricula, performance objectives with criterion measures, behavioral objectives, competency-based instruction, systems theory, network and critical path methods, task organization pattern identification, and content identification (40–44).

In their sections on "industry-education analysis" and "instructional units," Dyrenfurth and Householder entered familiar territory in industrial arts curriculum history. They reported that while these sources of curriculum generation did not create new curriculum methodologies, they nonetheless remained useful in establishing such new content areas for the field as energy alternatives, plastics, metal casting, aerospace education, safety education in industrial arts, and industrial pilot mechanics.

The famous Industrial Arts Curriculum Project (IACP), discussed in the history section, has its own category in the Dyrenfurth and Householder review because this curriculum is "one of the few innovative efforts to have reached enough students in a variety of settings to permit substantive research" (50). One such major study was undertaken by the Pontiac City School District (1971) of cognitive content mastery by students. Results from Pontiac, as well as the results from other research, show the Industrial Arts Curriculum Project to be generally effective. Students expressed a positive reaction to the World of Manufacturing curriculum in particular, but were "less than enthusiastic about the more abstract concepts of the program" (Dyrenfurth and Householder 1979, 50). Dyrenfurth and Householder specifically expressed appreciation to Buffer (1971) and Umstattd (1976) for undertaking syntheses of research on the IACP project. They wrote: "While the findings have not always been consistent or favorable for the innovative program, they encouraged subsequent researchers to validate curriculum developments" (Dyrenfurth and Householder 1979, 52).

In summarizing the research of the period covered by their review and synthesis, Dyrenfurth and Householder conclude that much research was going on, particularly in the development of instructional units; that the clearest area of weakness in industrial arts curriculum research is the secondary curriculum; and that another weakness is that much less attention is paid to the *use* of developed curricula than to the development itself (54–55).

McCrory's 1987 review of curriculum research for the period 1980–1986 uses the categories of comprehensive efforts, content, courses and units, learning activities, and curriculum development and implementation to summarize the studies. The most important curriculum project of the 1980s is the Jackson's Mill Industrial Arts Curriculum Theory, derived by 21 industrial arts educators from an analysis of technical human-adaptive systems (Hales and Snyder 1982a, 1982b; Snyder and Hales 1981). The authors promote the view of technology as an integral part of human-adaptive systems. Technology enables us to cope with our natural and humanmade environments. There are six classes of inputs into the system: people, knowledge, materials, energy, capital, and finance. The actions and practices applied to the inputs are defined as the processes used in adaptive behavior, and the outputs take the form of products, services, or desired conditions of the environment. Education then, is one of the feedback mechanisms that allows for assessment, adjustment, and constant redirection of the system.

To provide a single consistent principle for organizing curriculum content, curricular elements were divided into four subsystems of human technological/sociological endeavors: communication, construction, manufacturing, and transportation, each of which has technical and sociocultural components. The subsystems possess these common elements:

1. productive processes—those activities designed by people that utilize selected inputs to reach desired goals;
2. managerial processes—those activities designed by people to ensure that productive processes are performed efficiently and appropriately; and
3. a managed productive system—a system developed by people in which each step in the transformation of inputs to outputs is efficiently planned, organized, directed, and controlled with respect to company goals and in concert with society objectives.

While the degree of innovation in the Jackson's Mill project is debatable, the project's impact has been substantial. McCrory states that "the comprehensive studies and those related to curriculum content," such as those undertaken by Bensen (1979) and the Wisconsin Department of Public Instruction (1984), "give evidence that a consensus has formed" that the Jackson's Mill project is "the curriculum content model for technology education for the next decade." McCrory also states, however, that "as yet specific course outlines and student activities have not been developed [by states] to implement the new technology education curriculum designs" (McCrory 1987, 20).

Under the category "content and instructional units," McCrory discusses the current status of the perennial discussion in industrial education about the content source for industrial arts. McCrory cites recent arguments by Swanson (1983), Wright (1982), and Meyers (1985) that industry should remain the content base. In this section McCrory also refers to Lauda and Wright's article (1983) about the first university technology curriculum in the country, established in the early 1980s at Eastern Illinois University.

Under the category "curriculum development and implementation," McCrory singles out Bensen's 1979 discussion of the cluster, trade analysis, and concept approaches to curriculum development; Ritz's 1980 outline of a systematic process for curriculum consisting of curriculum foundations, content, and evaluation; the International Technology Education Association's 1985 guide for curriculum implementation, which showcased exemplary technology education programs; a curriculum guide for the handicapped; and a curriculum plan to promote sex equity (McCrory 1987, 19).

Finch (1983) analyzed recent curriculum research in the trade and industrial fields under the headings of models and frameworks, content determination, affective and transferable skills, futuristic content considerations, and competency-based education.

The most important curriculum model in trade and industrial education is the Maryland Plan, developed in the late 1960s and discussed in the section on the history of industrial education. Two other models Finch discusses reflect the need to focus on trade and industrial curriculum priorities. Drake, Davis, and Terry (1980) gathered data on a variety of curriculum dimensions and developed a ranking procedure for determining which trade and industrial instructional areas were in most critical need of development. Wichowski (1981) provided a needs-assessment model, the outputs of which include (1) identification of program areas with the greatest curriculum need; (2) weighted decision-making variables used to allocate resources; (3) demographic data; and (4) profiles of existing curricular textbooks.

In the area of content determination, Finch and Crunkilton (1979) identified six strategies for deriving trade and industrial content: philosophical base, introspection, function approach, task analysis, critical incident technique, and the Delphi approach. Ammerman, Pratzner, Essex, and Mead (1977), Berger and Hawkins (1979), and Morsh and Archer (1967) have all developed further approaches to the curriculum task analysis process, including occupational surveys, task inventories, and CODAPs (Comprehensive Occupational Data Analysis Programs).

Affective and transferable skills is an approach to curriculum not exclusively focused on the identification of technical content. Nelson and O'Niel (1977), for example, identified 27 skills important for occupational survival through telephone interviews with workers. Foster (1978) used the critical incident technique to identify essential nontechnical skills for workers in trade and industrial fields. Beach (1978) developed the Affective Work Competencies Inventory, while Swanson (1981) developed a system for analyzing subject matter related to nonobservable work behavior. Pratzner (1978) is one of several researchers who studied adaptability and skill transfer, while Spencer (1979) pioneered job competence assessment (JCA). Reigeluth and Merrill (1980) developed the extended task analysis procedure (ETAP) to encompass component skills and knowledge that must be learned if a whole task is to be mastered.

In the area of futuristic content consideration, several attempts at predicting the future content of trade and industrial curricula are discussed. Finally, research in the area of competency-based education (CBE) is presented. CBE is presented as the most promising and comprehensive approach to trade and industrial curriculum development because it includes key elements of task analysis and other trade and industrial processes. Horne (1981) has begun to sharpen CBE's definition in terms of formal standards that provide a framework for developing CBE in secondary vocational education programs, although Moss (1981) and others have warned against going beyond reasonable limits in applying CBE to education.

In summary, the 1980s appear to have been a time of consolidation rather than innovation in curriculum design in both industrial arts and trade and industrial education. A survey of dissertations and research articles on industrial education curriculum published since 1986 reveals little that had not been introduced earlier. One observation may be made, however, about curriculum development in industrial education during the period 1987–1990, namely, that several states now seem to have developed technology education curriculum guides or curricula as a result of the example of the Jackson's Mill curriculum. Dyrenfurth (1987) for the state of Missouri, the North Carolina State Department of Public Instruction (1987), Cuetara (1988) for the state of New Hampshire, and Savage (1989) for the state of Ohio have developed and reported on their new technological literacy/technical education models, all based on the Jackson's Mill curriculum.

A second type of recent work, of which there are several examples, is the reflective essay or other type of synthesis of the technology education trend within industrial arts. Examples of such work are Zuga's 1987 AERA presentation "Trapped in a Technocratic Ideology," Clark's article in the newly established *Journal of Technology Education* examining the contemporary paradigm shift in industrial education (1989), and Colelli's "primer" on technology education (1989).

Curriculum in industrial education during the 1970s and 1980s still seemed to be catching up to the great burst of creative energy displayed during the 1960s when several large-scale curriculum projects such as the Maryland Plan were undertaken. In the 1970s the Industrial Arts Curriculum Project became the standard against which other curriculum theory and practice were measured, and in the 1980s that role fell to the Jackson's Mill curriculum project. Some industrial arts educators hope for a renewed burst of conceptual vigor, arguing that the 1970s and 1980s reflected a greater emphasis on compromise and consensus than may be healthy for the field.

Marketing Education

Research in the field of marketing education for the period 1969–1978 was reviewed by R. G. Berns (Virginia Polytechnical Institute and State University), J. L. Borrow (University of Northern Iowa), and H. R. Wallace (Colorado State University) (1980). The section on curricular research was subdivided into the areas of competency identification models, analysis of marketing occupations, middle management retail occupations, middle management curriculum, content areas, postsecondary curriculum research, and curricula designed to meet special needs. The authors introduce the section by noting that the basic framework for marketing education curricula was developed from the conceptual work of Nelson (1963), who proposed four areas of subject matter: social skills, basic skills, product or service technology, and marketing skills. In 1969, the U.S. Office of Education published *Distributive Education in the High School*, extending Nelson's work and adding three career levels: basic jobs, career development jobs, and specialist jobs. Following this, in 1978, the U.S. Office of Education issued *Distributive Education Programs*, which added the economic concepts of private enterprise as a fifth area of subject matter and defined four levels of employment: threshold, career sustaining, specialization, and entrepreneur. Twenty-two instructional programs were described to characterize the scope of marketing education.

From the mid-1960s on, competency identification for the occupations making up marketing work was the consistent approach to providing a base for the marketing curriculum. Studies to identify competencies have used methods including mailed surveys, personal interviews of workers and supervisors, and direct observation of workers. The landmark competency studies by Ertel (1966) and Crawford (1967) set the theoretical structure for later studies in focusing on the analysis of occupations within the clusters of marketing work and providing an initial, extensive list of competencies.

To review, Ertel (1966) identified the competencies important to successful employment in three categories of retail businesses. Crawford (1967) developed a list of 983 competencies for marketing work in seven categories of businesses. She classified the competencies into nine competency areas: advertising, display, human relations, communications, mathematics, merchandising, operations and management, product or service technology, and selling. Using Crawford's research, Harrison (1973) directed a 3-year development and testing study for 500 learning activity packages involving nearly 200 teachers and 7,000 students in 11 states. The study involved developing a computer-assisted management system to organize instructional activities in relation to student career objectives.

The competency identification studies that followed can be organized into the following: (1) comprehensive studies of marketing work, (2) studies of one occupational cluster of marketing work, (3) studies of one occupation within an occupational cluster, and (4) studies of one competency area (as defined by Crawford). In the first category of comprehensive studies of marketing work, the work of Lynch and Kohns (1977) is prototypic. They identified competencies for occupations in 19 of the instructional program areas used by the U.S. Office of Education to describe the scope of marketing education. Competency lists were developed from a synthesis of interviews with representatives from business and analysis of previous competency studies. Broad course outlines were developed from the competency lists for the 19 instructional programs. The content for each program was structured for three levels of employment (i.e., entry, midmanagement, and manager/owner) and five instructional areas (i.e., marketing, product or service technology, social skills, basic skills, and economic principles/concepts). Instructional objectives used to describe and communicate the content were reviewed by consultants and business representatives for each employment level and instructional program.

Another comprehensive study aimed at developing competency lists for marketing work was conducted by Harris (1978) as a basis to prepare curriculum guides for marketing education program areas. Harris focused on essential competencies for the most common entry-level jobs and the most common career ladders and promotion criteria in each occupational cluster of marketing work. Information for the study was based on literature review, juries of business executives, and structured interviews of workers.

At about this same time two cooperative efforts among states were also active in assisting to develop and reform the marketing education curriculum using a competency-based approach and avoiding unnecessary duplication of efforts. The Interstate Distributive Education Curriculum Consortium (IDECC) (now known as the Marketing Education Resource Center), formed from the states that developed, field tested, and disseminated the learning activity packages based on Crawford's work (Harris 1978), in 1979 began efforts to update and extend its competency-based curriculum. As a part of the effort, Williams, Berns, and Heath-Sipos (1979) developed a standard procedure for developing competency lists (task inventories) for the curriculum work of the consortium. This procedure was tested by the developers with 16 general merchandising department store occupations.

Another consortium to develop competency-based curriculum in vocational education, including marketing education, was initiated at about this time under the name of Vocational-Technical Education Consortium of States (V-TECS) (1978). Seventeen states made up the initial consortium to strengthen competency-based curricula and avoid duplication of efforts among the states. Again a standard procedure was developed to guide competency identification and description. The studies published by the consortium include performance objectives and criterion-referenced measures to aid in evaluation of teaching and learning.

In their review and synthesis of marketing curricular research, Berns, Borrow, and Wallace (1980) describe several competency studies that focus on only one occupational area of marketing work (as opposed to comprehensively addressing all areas). Among those cited, where persons employed in the occupation were used as a primary source of data, are studies of the hotel, tourism, foods, and fashion industries. A third group of important competency studies cited by Berns, Borrow, and Wallace (1980) addressed particular occupations within occupational areas. Here they cited work on middle managers in retail stores for hotel/motel room clerks and cashiers in the hotel industry.

The last category of competencies studies identified by Berns, Borrow, and Wallace (1980) related to studies of specific competency areas as originally described by Crawford (1976). Although most studies related to a specific occupational area or geographic area, the competency areas addressed in cited studies were mathematics and computation, marketing research, selling, economics, and marketing concepts.

The impact of the Vocational Amendment of 1968, with its attention to better serving the needs of a more diverse group of people in vocational education, is evident in marketing curricular research during the 1970s in studies that focus on special needs groups of learners. Studies on testing a more intensive marketing education program for high school seniors in Detroit, on modifying marketing education programs for the needs of emotionally and mentally handicapped students, and on testing the motivational impact of information about marketing careers with Philadelphia high school students are indicative of efforts to focus on the needs of special learner groups.

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At the end of the 1970s, Berns, Borrow, and Wallace concluded their review of curricular research in marketing education as follows:

> Much of the curricular research in the past several years has primarily focused on competency or task analysis. Competency-based instruction has become an accepted element in marketing and distributive education. Future competency research needs to be examined to ensure that representative populations are used to identify competencies, that comprehensive coverage is given to the broad range of marketing occupations, that unneeded duplication is avoided, and that a greater consistency of research design is maintained. Consideration needs to be given to other curriculum models; additional evaluative studies should be conducted to measure the effectiveness of competency-based programs. (164)

The 1980s brought continued work on competency studies, such as work in identifying needed competencies for entry-level jobs and career ladders in the automotive and petroleum industries. However, curriculum research efforts also broadened to include (1) attention to the teaching of basic academic skills (i.e., mathematics and communications) in marketing education; (2) microcomputer applications important to the content of marketing education; (3) teaching entrepreneurship competencies in marketing education; (4) teaching marketing and economic principles; (5) the importance of teaching effective work competencies in marketing education (Stewart and Dill 1987); and (6) the relationship of students' cognitive style to learning in marketing courses.

The 1980s were also a time of reexamining the mission, directions, and standards of quality for marketing education. These scholarly efforts were initiated in 1980 at the National Conference on Marketing Education: Directions for the 1980's in Vail, Colorado. Major papers were presented by Samson ("Distributive Education: Identity and Image"), Egglund ("Program Development in Marketing and Distributive Education"), Rowe ("Leadership in Marketing and Distributive Education"), and Trapnell ("Power and Influence"). The purpose of the conference was "to make critical decisions regarding the future role of marketing and distributive education as a significant delivery system for vocational education" (Burgess and Nelson 1980, 1). Emanating from the conference was verification of a mission statement and premises to guide marketing and distributive education. The mission statement for the 1980s initially drafted by Samson (1980) and modified somewhat at the conference read thus:

> The mission of Marketing and Distributive Education is to develop competent workers in and for the major occupational areas within marketing, assist in the improvement of marketing techniques, and build understandings of the wide range of social and economic responsibilities which accompany the right to engage in marketing businesses in a free enterprise system. (Lynch 1983, 15)

The use of the prepositions "in" and "for" indicates the intention to provide educational programs for those already engaged "in" marketing work as well as preparatory programs "for" those who will be entering such work. The premises adopted for marketing and distributive education programs and in support of the mission statement (also initially developed by Samson [1980]) are as follows:

- The discipline of marketing is the content base for all instruction.
- Instruction will be offered to any personnel and in whatever setting necessary to meet community needs.
- Programs will deliver a range of instruction covering functional skills, career competency development, operational management, and entrepreneurial development.
- Instruction will stress application to, and direct involvement with, marketing businesses and be carried out by a variety of methods.
- Professional personnel in the field of marketing and distributive education will have training in marketing and marketing education, and will possess business experience in marketing.
- Where offered, marketing and distributive education will be considered an integral part of the institution's educational program, with direction and counsel coming largely from a business community advisory group. (Lynch 1983, 2)

The premises particularly important in their curricular implications are the focus on marketing as a content base (i.e., the business activities of market research, product and service planning, promotion, buying and pricing products and services for resale, physical distribution, financing, and management) and attention to a wide range of functional, career, management, and entrepreneurial skills. A high level of nation-wide endorsement for the mission statement and premises was found among state supervisors, teacher educators, teacher coordinators, school administrators, and businesspeople in a 1983 study (Jacobsen 1983).

Lynch (1983) used the results of the conference along with other reports and interviews with educators, business persons, and association executives to develop a national plan for the future of marketing education, which was called for by the conference. Among the 7 recommendations resulting from his work was that the term "marketing education" should be used to name the field because it better described what is taught (distribution being only one component of marketing) and is used more commonly in businesses and colleges and universities. Other recommendations included the development of a Marketing Education Association to bring together all professionals involved in marketing education and the development of a conceptual framework for marketing educators to use, particularly in articulating curricula among the various educational levels.

Another area of continued professional discussion recommended at the 1980 conference was the development of standards for monitoring the quality of marketing education. Development and validation of process standards was addressed by Wubbens (1982). Attention to outcome standards which would better assure "product consistency" for secondary marketing education was provided by Stone (1985). Stone used Delphi procedures with a 20-member advisory panel made up of former students, business people, and marketing educators. Twenty-four outcome standards were judged to be very important; the 5 standards rated most important for graduates of marketing education programs were that they:

1. Exhibit positive attitude toward work and their employers.
2. Demonstrate employability skills.
3. Exhibit pride in their work.
4. Demonstrate work habits appropriate for their marketing occupation.
5. Demonstrate good citizenship.

Among Stone's recommendations are that these standards be used to plan curricula and that states consider developing an extensive evaluation procedure (i.e., a posttest for program completers, an employer follow-up, and a longitudinal follow-up of students) to assess student learning and later success.

During the 1980s, considerable curricular research and development was expended on developing state curriculum guides for marketing education. A content analysis of selected state guides was done by Gleason, Harvey, and Dopo (1985), particularly with regard to the "foundations for marketing education and the function of marketing" developed earlier by the Curriculum Committee of the National Council for Marketing Education. This led to the development of the *National Curriculum Framework and Core Competencies* (National Curriculum Committee for Marketing Education 1987). The *National Framework* recommended conceptualizing curriculum thinking in terms of levels of marketing occupations (i.e., entry level, career sustaining, marketing specialist, marketing supervisor, and manager/entrepreneur), functions of marketing (i.e., distribution, financing, marketing-information management, pricing, product/service planning, promotion, purchasing, risk management, and selling), and foundations of marketing (i.e., economic, marketing and business, and human resources). Core competencies are identified to fill out this framework as specific guides for curriculum development.

Spurred by the National Curriculum Conference in Marketing Education held in 1985, many states initiated curriculum development efforts. An exemplary guide developed after considerable systematic competency development research and professional involvement is the *A Guide to Curriculum Planning in Marketing Education* (Wisconsin Department of Public Instruction 1987). The guide contains sections on philosophy, directions, curriculum, evaluation, sex equity, advisory committees, special needs students, guidance, and Distributive Education Clubs of America. Drawing from the *National Curriculum Framework and Core Competencies*, the curriculum section sets forth a conceptual framework for marketing education made up of "foundations" and "functions" that address marketing education at various career levels. The "foundations" component is composed of human resource foundations (i.e., mathematics, communications, self-understanding, interpersonal skills, career development, and human resource management), economic foundations (i.e., basic economics, economic systems, and entrepreneurship and economic trends), and marketing and business foundations (i.e., business ownership and operations and marketing functions and concepts). The "functions of marketing" component is made up of distribution, financing, marketing information management, pricing, product/service planning, promotion, buying, risk management, and selling.

In summary, the curricular research in marketing education uses study of marketing work as a basis for curriculum development and renewal. Cooperative efforts among states are used to enhance the consistency, efficiency, and frequency of competence assessment as a means to keep the curriculum modern and up-to-date. The field has several widely accepted conceptual frameworks for describing and reflecting on its curricular content, including program categories, competency areas, occupational levels, and foundations. During the early 1980s, professionals in marketing education developed and adopted a new mission statement and premises to set future direction for the field. Scholarly work since that time has sought to develop program standards, curriculum content, and program development consistent with the mission and premises. Curriculum content changes exhibit attention to a wider array of occupational levels, often requiring postsecondary education for entry, with a concurrent shift away from entry-level training as the major focus. Changes have included a new name, marketing education, and a new professional association, the Marketing Education Association. Curricular research in marketing education is an ongoing component of the Marketing Education Resource Center. Questions that might direct curricular research for the future in marketing education are: (1) Since the marketing function cuts across various industrial categories, what should be the relationship between marketing education and other subfields of vocational education such as agriculture, business, and industrial education? (2) Should marketing education more seriously entertain approaches in addition to task analysis/competency-based strategies as a basis for curriculum? (3) What should be the response of marketing education to the large predicted increase in sales workers, particularly in service industries?

Health Occupations Education

In the 1970s and 1980s health occupations education became more and more recognized as a distinct field of vocational education. In fact, health occupations education has now become known by its acronym, HOE, signaling the "arrival" of the field. Other signs of HOE's increasing status may be found in evidence of institutionalization in the last 15 years. For example, the U.S. Department of Education established the position of secondary and postsecondary Health Occupation Education Program Specialist; university departments of education have HOE teacher educators on staff; there is a division of Health Occupation Education within the American Vocational Association, which holds both curriculum and research conferences periodically; the *Journal of Health Occupation Education* has begun publication: and the Health Occupations Students of America (HOSA) has been formed.

As the worth of nonprofessional auxiliary workers in the health occupations very gradually became established since the 1940s, vocational education at the junior high, high school, and postsecondary levels assumed an increasingly important role in training these new workers. Following the pattern established in the earliest years of the 20th century with practical nursing, training in the health occupations continues to stress the importance of on-the-job training. Despite a few studies (Cohelan 1963; Crenshaw 1961; Elmore 1964) suggesting innovative ways to improve the curriculum in health occupations fields, in general, the health occupations curriculum, particularly at the secondary level, was based directly on occupational analysis. This trend lasted until the mid-1960s. Sometimes curriculum developers simply asked people working in the field how they did their job or how it should be done. Sometimes various observation and interview techniques were used.

In the late 1960s, as the field of health occupations education began to expand to include new subfields, researchers began to develop more sophisticated methodologies. Decker (1967), for example, in seeking to develop curriculum in the medical laboratory subfield of health occupations education, also had a broader curricular development goal. He sought to develop a model for determining the goals of instructional programs in general. In a study called *A Functional Analysis of Paramedical Occupations as a Foundation for Curriculum Development*, Decker used a procedure called evental analysis to refine educational goals. Evental analysis describes in simple terms the real "events" that a worker must perform on the job (or in a simulated on-the-job situation) in a specific time frame and with specific accuracy. It will be noted that Decker's work is similar to the work in "behaviorally specified objectives" done by Mager (1962) and others at about the same time, although it is less well known.

Other approaches found useful to some researchers in the development of health occupations curriculum are the "core" and "ladder" concepts. Developers using the "core" concept approach look for commonalities in the curricula of multiple health programs offered by the same or neighboring educational institutions and seek ways to combine these common elements into more economical course offerings (Holloway and Kerr 1969, 31). The "ladder" concept is an extension of the core concept as Holloway and Kerr explain it: "Just as commonalities across several health occupations will be identified for core courses, so will commonalities between levels within a field" (32). Using the ladder concept, training for programs is planned so that trainees will have the opportunity for career development within their health occupation.

Despite the increasing importance of the health occupations fields and an expanding repertoire of useful approaches to curriculum development, there is as yet no unified focus for curriculum in secondary health occupations, according to Catherine Junge, who held the position of Health Occupation Education Program Specialist in 1989 (telephone interview). Junge estimates that 50 percent of both secondary and postsecondary health occupations education is nursing related.

Secondary curriculum can be divided into two categories: exploratory and preparatory. There are regional differences with regard to the number of secondary programs offered and the content of those programs. In the eastern and southern states there are large numbers of programs, and the emphasis is on preparation for job entry. Showcase states include Texas, Florida, and Oklahoma; Texas has several high schools entirely devoted to health occupations education. In the Midwest, the number of secondary programs is not as great, and there tends to be a greater emphasis on exploratory programs. For example, Iowa has only three HOE programs at the secondary level. According to the results of telephone interviews with four leaders in the HOE curriculum field, there are several factors that currently influence or will influence curriculum:

> The Health Occupations Student Organization (HOSA) plays an informal role in standardizing curriculum by providing an opportunity for secondary HOE educators to congregate. The numbers of disadvantaged students in some states drives the curriculum towards preparation for job entry. The movement away from integration with industrial education released what was perceived as a barrier to the emergence of HOE leadership.
>
> Since half of all secondary programs are nursing related, the National Board of Nursing influences program content. The fact that graduates of certain HOE programs are required to have certification or registration in the given occupational area also influences curriculum.
>
> The U.S. Omnibus Reconciliation Act of 1987 has a requirement regarding Medicare/Medicaid reimbursement for employers in long-term nursing care facilities. Nursing assistants employed in those facilities must be prepared using a seventy-five hour nursing assistant curriculum. Given the large numbers of nursing assistant programs, this will have a great impact on curriculum nationally. The national trend toward "back to basics" offers a challenge to the HOE curriculum writers. The HOE leaders interviewed hope that HOE courses can fulfill secondary science credits, thus increasing the viability of some programs in times of cutbacks.
>
> The HOE leadership is moving towards multi-occupational preparation at the secondary level rather than preparation for a single occupation. (Junge 1989)

Other signs of the trends in the emerging fields of health occupations education are found in some recent exploratory and preparatory HOE curricula prepared by state departments of education and university HOE curriculum developers. For example, one exploratory core curriculum was developed in Minnesota (Minnesota Health Occupations Core Curriculum) to be offered to all HOE students (Bralier 1983). It contains units on introduction to health careers, medical terminology, anatomy and physiology, emergency first aid and CPR, conflict resolution and decision making, working with others, career planning, and leadership skills. Another exploratory curriculum from Louisiana (Cassimer 1981) combines concepts from the core and ladder curriculums. It is designed to help health occupations teachers in Louisiana prepare grade 11 and 12 students with beginning-level skills in a variety of health-related occupations. The 10 units are introduction to health careers (60 hours), medical terminology (60 hours), nutrition (60 hours), growth and development (20 hours), infection and disease (30 hours), basic skills (90 hours), emergency care and safety (60 hours), and cooperative health occupations (1 hour daily for 1 year plus 15 hours a week in certifiable health employment).

In summary, health occupations education (HOE) is a growing area of vocational education at both the K-12 and postsecondary levels due to the increasing demand for auxiliary health workers. At present there are several options for HOE programs offered in the public schools, according to the American Vocational Association Health Occupations Division (1985): (1) health careers orientation programs, provided at grades K through 8; (2) health career exploratory programs, provided at grades 9 and 10, in which students are exposed to health options in cluster groupings and given the opportunity to participate in hands-on, related activities; (3) health occupations programs provided at grades 10, 11, and 12, in which students are provided skill development in two or more health occupations; and (4) health occupations programs provided at grades 11 and 12, in which students are offered training in a single health occupation, with nursing-related programs the most prevalent.

Some observers of the HOE curriculum options believe they have so far been defined too narrowly. More than some fields, health occupations offer an opportunity for students to grapple with issues of ethnic diversity. Beliefs and values about health, disease, hygiene, touching, and other related issues differ greatly from culture to culture. Multicultural approaches to health care could be an important component of the HOE curriculum options.

Career Education

In the 1960s, knowledge about occupational choice as a developmental process increased dramatically. By the end of the decade, the terms "career" and "career development" began to become popular, so that today many people prefer them to "vocation" and "vocational development" (Gysbers 1984, 620). In 1964, the Sixty-fourth Yearbook of the National Society for the Study of Education focused on vocational education. For example, Franklin J. Keller (1964), a well-known vocational educator since the 1940s, wrote an article titled "Vocational and Educational Guidance" for the yearbook (135-167). The article seems to stand at a historical crossroads, on the one hand emphasizing vocational guidance and the provision of occupational information as the responsibility of both classroom teachers and counselors within the context of both general and vocational education and, on the other hand, recognizing the new emphasis on the developmental nature of career education and the need for specialized testing, research, and counseling.

Although there is no necessary conflict between the two "positions" taken by Franklin, the career educators who became so powerful during the decade of the 1970s emphasized career development as an important education goal for *all* of education and reached beyond traditional vocational education. Goldhammer and Taylor (1972) state:

> While occupational and career development have been included in earlier statements of educational purpose, it should be emphasized that career education is not more of the same. It is not a synonym for vocational education. It is not a reiteration of traditional . . . educational goals. It retains the essentials of education but introduces a new sense of purposefulness—career development. It places career development as the central unifying element for education. (2)

They continue:

> Specifically, career education is designed to capacitate individuals for their several life roles: economic, community, home, avocational, religious, and aesthetic. . . . Designed for all students, career education should be viewed as lifelong and pervasive, permeating the entire school program and even extending beyond it.
>
> Career education is a systematic attempt to increase the career options available to individuals and to facilitate more rational and valid career planning and preparation. (6)

In a similar vein, Herr (1972) writes:

> Vocational education has been called the Bridge Between Man and His Work (*The General Report of the Advisory Council on Vocational Education*, 1968). If a career development theme is to be viable, such an appellation must come to describe the total educational enterprise—not just a segment of it. . . . More than narrowly defined job training is involved. It is this very specificity of trade or job training which has led to cries of obsolescence in vocational education and unresponsiveness to the dynamics of the occupational structure. (98)

The "new and exciting adventure" (Keller 1972, 185) of career education that began in 1971 was spearheaded by Sidney P. Marland, U.S. Commissioner of Education, who made career education the highest priority of his administration. Marland passionately advocated the developmental approach to career education. He established a new Office of Career Education (McCrory 1976, 63), wrote and spoke extensively about the value of career education (Marland 1972a, 1972b), and lobbied successfully among vocational educators to use vocational education funds to support 112 K-12 career education demonstration projects (Hoyt 1980, 179) and to establish and test the viability of four different types of career education models (Hoyt 1987).

The career education reform movement was indirectly funded through the Education Amendments of 1972 and directly funded through Section 406 of the Education Amendments of 1974 and the Career Education Incentive Act of 1978 (Halasz 1988, 2). In 1981 Congress repealed the Career Education Incentive Act. While career education advocates were worried in advance that the repeal of federal funding would cause the demise of career education, career and other educators seem to disagree after the fact about the impact of the repeal. Some educators (e.g., Hoyt 1980; Mal-

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piedi and Hillison 1986) say that the career education movement was a success as evidenced by the integration or "infusion" of career education material into all levels of the curriculum. "Invisibility" in this case, they argue, indicates success. Other educators see career education as an essentially conservative reaction to education reform ideas of the 1960s (Shor 1987) and assert that, like many other reform movements in education, it has run its course.

A third opinion among educators is that while the career education movement represented a period of unusually intense interest in a theme that has been and will continue to be crucially important in 20th-century American education, career education as a reform movement has peaked and is in decline (Halasz 1988; Herr 1987b). Evidence for the latter position includes decreasing numbers of citations of "career education" or "career development" as descriptors in the ERIC database and the total absence of articles or conference presentations about career education in American Vocational Association publications and activities since 1976, despite much AVA interest in the subject during the 5-year period preceding 1976 (Hoyt 1980, 179).

Just as there are different evaluations of the impact of the career education movement of the 1970s, so there are different assessments of the viability of career education in the 1980s. In his 1987 review of the career education literature, Hoyt says there are 7 basic ways in which persons "commonly" define the goals of contemporary career education. These are:

- to promote and implement private sector/education system partnerships;
- to equip persons with general employability/adaptability/promotability skills;
- to help persons in career awareness/exploring/decision making;
- to reform education by infusing a "careers" emphasis in classrooms;
- to make work a meaningful part of the total lifestyle;
- to relate education and work so that better choices of both can be made; and
- to reduce bias and stereotyping and thus protect freedom of career choice. (5–6)

While Hoyt's goals were the major goals of the leading members of the career education reform movement, it is doubtful that they are "commonly" seen as current goals of something called "career education." Rather, the seven goals have been reassigned to different parts of the contemporary educational agenda. Thus, there is great current interest in partnerships or collaboration between industry and education, for example, but this interest is probably not connected in the minds of either professional educators or the public to the career education movement.

As is often the case when federal dollars are involved, the career education focus in the 1980s is the most visible in curricula explicitly developed for one or more special populations designated for special funding by the Carl D. Perkins Vocational Education Act of 1984. While most of these groups are adults, funds are also available for career exploration and guidance for at-risk youth.

In summary, the career education "movement" of the 1970s is too close to the present moment to assess with precision. It is possible that Herr (1987a) is correct when he argues that the legacy of the career education movement of the 1970s is to be found in the amorphous but strong commitment of some educators in the 1980s to "basic skills." Herr links the career education movement to the back-to-the-basics reform movement of the 1980s, which began with the publication of *A Nation at Risk* in 1983. Even though *A Nation at Risk* does not include career education in its recommendations for reform, Herr believes that his broad—and possibly overly optimistic—interpretation of the current emphasis on basic skills to include commitment to career education is supported by the 1985 report of the Committee for Economic Development, "which indicates that specific occupational skills are less crucial for entry-level employment than a generally high level of literacy, responsible attitudes toward work, the ability to communicate well, and the ability to learn" (Halasz 1988, 5).

However, Halasz probably comes closer to expressing the views of most contemporary vocational educators when she comments in the conclusion of her 1988 review of career education:

> Much of the [career education] literature seems to take a defensive posture in attempting to prove that career education exists, that it is successful, that it is a critical aspect of educational reform, that it was the precursor and definer of the reform movements of the 1980s, and that its value should be recognized. Perhaps it is time to accept its existence as a relevant construct or strategy and to move on to more useful pursuits, such as conducting research that can answer the many unanswered questions about career development in this complex and changing society. (21)

Vocational Education

The curricular research from the mid-1970s to the present that deals with vocational education as a whole or with particular dimensions not generally addressed within specific fields is described in this section. The review is organized into components dealing with studies of the whole vocational education enterprise, studies of selected curricular topics, and exemplary state-level curricular studies.

Studies of the Whole Vocational Education Enterprise. The Educational Amendment of 1976, Public Law 94–482, also known as the Vocational Education Act of 1976, directed the National Institute of Education to do a national evaluation and study of vocational education conducted under the Vocational Education Act of 1963 and other related legislation. The study was particularly to focus on the distribution of funds, compliance with laws, program quality and effectiveness, and consumer and homemaking programs and make recommendations for future federal legislation. The final report of the Vocational Education Study, directed by Henry David and involving several million dollars over 3 years, was issued in September 1981 as the drafting of legislation later to become the Carl D. Perkins Vocational Education Act of 1984 was underway. Several of the findings and recommendations of the study had implications for the curriculum of secondary vocational education.

The study concluded that the vocational education enterprise "is pluralistic and diversified in structure and governance and constitutes a multiplicity of different systems" (David 1981, xxi). Results of examining the effectiveness of secondary vocational education were inconclusive because of limitations in data available at the time and the difficulty of the research problem. From a federal perspective the report poses three options for improving vocational education: (1) extend and improve the quality of programs, (2) improve services to students with special needs, and (3) equalize the capacity of local schools to provide vocational education. These options were provided to assist in framing the policy issues about vocational education for the federal government, essentially noting that the federal government had attempted to do too much about vocational education with too little resources and therefore needed to make some choices about how vocational education could best be improved—increasing quality or increasing access and doing this for all or for a special group of potential students. At about this time, Swanson (1982) was pointing out:

> Vocational education has not developed as a system but rather as a collection of enterprises identified to a greater or lesser degree with every type of education and most types of institutions. Yet the most distinguishable characteristic of various forms of occupational preparation is not the type of education chosen, but rather its duration or length. (22)

The idea of vocational education being designed and planned as "short" education was for Swanson a tragedy, as short education leads to lower expenditures per student, having a disproportionate number of disadvantaged students enrolled, and lower-status occupational positions than "long" education. He concluded that the major policy issues important to vocational education at the time were (1) federal versus state versus local control, (2) limiting programs to the postsecondary level versus extending into the secondary level, and (3) closing versus maintaining the gap between liberal arts and vocational education.

Another overview of the vocational education enterprise was prepared by Bottoms and Copa (1983) describing the many changes which were underway in vocational education, including its curriculum. They pointed out that vocational education at the secondary level was occurring in a wide variety of institutional types: general high schools (10,851), comprehensive high schools (4,878), vocational high schools (225), secondary area vocational centers (1,395), and, through articulation agreements, several types of postsecondary institutions. The curriculum in vocational education was categorized into consumer/homemaking, prevocational, prevocational basic skills, related instructions, and employability skills programs. The employability skills programs were, in turn, classified into occupational-cluster, occupationally specific, job-specific, and employer-specific programs. Issues facing vocational education, each with curricular implications, were (1) need for intensive vocational education for advanced work responsibilities involving longer-term training, continuous on-the-job experience, and active involvement of employers in curricular planning; (2) an integrated approach to instruction, bringing together the basic (i.e., mathematics, science, communications) and applied (i.e., vocational subjects) disciplines; and (3) vigorous pursuit of excellence in vocational education, which would include the quality of basic skills instruction, teaching an understanding of "why" as well as how to "do," and maintaining breadth (i.e., effects of technology, changing nature of work) as well as depth in vocational education.

An extensive review of vocational education, particularly in high schools, was completed by the National Commission on Secondary Vocational Education (1984), chaired by Harry F. Silberman and entitled ***The Unfinished Agenda***. Its charge was to examine the role and function of secondary vocational education in American high schools, especially in the context of educational reform reports such as ***A Nation at Risk*** (National Commission on Excellence 1983). The Commission based its response on site visits to schools, public hearings, solicited opinions, and its own deliberations. The Commission called for educational diversity as the more responsive action to promoting excellence and equity in high schools. Vocational education's role was seen as making youth more employable, with ***all*** students needing a mix of academic and vocational education (National Commission on Secondary Vocational Education 1984, 3).

Vocational education was described as both a body of knowledge and an educational process. Speaking directly to curriculum, the Commission concluded that the content should include "career guidance and exploration, general employability skills, broad concepts of work and family, and general and specific occupational skill training" (14). Content should be addressed in classrooms, community internships, part-time work, projects, independent studies, and youth organizations. The Commission concludes that quality should be the major issue in secondary vocational education. Within the context of improving quality, the Commission makes recommendations regarding access; equity; curriculum; teacher recruitment and preparation; standards and accountability; articulation; leadership; business, labor, and community; and field-based learning. With respect to curriculum, the recommendations for finishing the agenda for vocational education include (1) reducing curricular mandates that limit opportunity for students to participate in vocational education; (2) including instruction and practice in reading, writing, arithmetic, speaking, listening, and problem solving in vocational education; (3) developing self-esteem, positive attitudes toward work, safe work habits, job-seeking skills and other general employability skills, in addition to occupationally specific skills;

(4) enriching and diversifying courses to make them attractive to all students; (5) allowing students to satisfy some graduation requirements through study of vocational education; and (6) providing opportunities for students to participate in vocational youth organizations.

The second major assessment of vocational education mandated by the Congress, entitled the *National Assessment of Vocational Education*, and under the direction of John G. Wirt, was called for by the Carl D. Perkins Vocational Education Act of 1984. The purpose of the study was to describe and evaluate the effects of the Act in terms of vocational education's relation to special populations, modernization, academic skills, employment opportunities, and other topics. The final report of the several-million-dollar study (Wirt, Muraskin, Goodwin, and Meyer 1989), using methods ranging from field study to sophisticated empirical investigations, includes a section specifically addressing secondary vocational education. Many of the findings and recommendations have curricular implications.

Among the findings on secondary vocational education is that participation in vocational education is nearly universal in serving all students, including the college bound. Vocational education was described conceptually as being made up of three major types of programs: (1) consumer and homemaking education, (2) general vocational education (i.e., typing I, introductory industrial arts, work experience, and general skills courses), and (3) occupationally specific vocational education (i.e., training in the 11 subject areas of agriculture, business support, business management, marketing and distribution, health, occupational home economics, technical and communications, construction, mechanics and repair, precision production, and transportation). On average, students took more credits of vocational education in high school than any other subject (i.e., English, mathematics, social studies). The breadth of participation provides a challenge for vocational education curriculum in balancing attention to job-specific and transferable occupational skills. Because students going directly to work after high school and those going on to postsecondary school both take a large amount of vocational education, its role in teaching basic academic skills is also a curricular challenge.

The 1989 *National Assessment* concluded that academically disadvantaged and handicapped students take more vocational education than academically advantaged and nonhandicapped students. However, academically disadvantaged and handicapped females and students from schools with high concentrations of academically and disadvantaged students participate in different-quality (lower) vocational education, as measured by breadth and depth of courses offered. Based on this finding, the report recommends targeting of program improvement (including curriculum) efforts in schools with a relatively high number of poor and low-achieving students.

With respect to the job-specific dimension of the curriculum for secondary vocational education, the *National Assessment* concludes that vocational education at the secondary level needs to include *both* job-specific and broad occupational training and integrated academic and vocational instruction. There are students with both types of needs in secondary schools, and all of these students should be provided with high-quality programs. Specifically concerning the curriculum for job-specific programs, the report recommends attention to learning that is closely aligned with the needs of employers, focuses on higher-skilled jobs, and includes aggressive job placement assistance.

In its examination of the effects of vocational education on achievement in basic academic skills, the *National Assessment* specifically investigated the area of mathematics. The findings support the conclusion that significant gains in mathematics achievement can be made in curricular areas of an applied nature when the courses are heavily enriched with mathematics content. This conclusion is particularly significant for students not bound for college after high school since they do not take a lot of traditional mathematics, experience significant mathematics gains in applied learning settings, and take a relatively large amount of vocational education. However, the report concludes that traditional vocational education courses would need to be substantially revised to include more mathematics content if they are to play a larger role in boosting mathematics proficiency (Wirt, Muraskin, Goodwin, and Meyer 1989).

Studies of Selected Curricular Topics. A series of topics that received focused attention during the 1980s can be identified in the curricular research addressing vocational education as a whole. The topics selected for inclusion here are vocational education and basic skills, emerging skill needs, at-risk students, tracking, competency studies, higher-order thinking skills, generalizable skills, and international education. Exemplary studies relating to each topic will be briefly reviewed to illustrate the nature of the curricular research conducted.

Lotto (1983) addressed the topic of teaching basic skills through vocational education. She found strong support for the generalizations: "Academic students are substantially more proficient across all basic skill areas than vocational students" (3) and "Secondary school curriculum enrollment distinguishes among students by academic achievement and ability" (5). Using case descriptions of actual programs or projects designed to reinforce and remediate basic skills through vocational education, Lotto identified four basic strategies being used at the secondary level: (1) compensatory or remedial programs (special programs for low-achieving, disadvantaged, low socioeconomic-status students who are not succeeding in regular classrooms), (2) support-oriented programs (reinforcing basic skills instruction to support learning in vocational education), (3) alternative school programs (separate schools for students who are disaffected, alienated, or "turned off" by regular school), (4) in-service training programs (strengthening basic skills teaching competence for vocational teachers). Work by Stern, Dayton, Paik, Weisberg, and Evans (1988) illustrates the evaluation of one of these curricular strategies, the alternative school, as a means to reduce high school dropout rates. The study focuses on high schools that replicate the California peninsula academies, which combine core academic curricula with vocational instruction in selected occupational fields for dropout prone students. Results of analysis suggest that student effects in these alternative schools can be replicated and that generally the students in these schools had better grades and completed more course credits than comparison group students.

Harrington (1988), in a review of research and cases of integrating academic and vocational education, states that "vocational education does not exist apart from academics" (2). She goes on to pose three categories of basic skills needed by students in vocational education: (1) common-core basic skills (i.e., mathematics, science, and communications), (2) job-specific basic skills (i.e., specific to an occupation), and (3) academics for the whole person (i.e., liberal studies). However, the reinforcement and enhancement of basic academic skills in vocational education classrooms requires clear and sustained attention if it is to actually occur (Weber, Puleo, and Kurth 1989). Based on observation in vocational and nonvocational classes in 120 secondary schools in 24 states, these authors concluded that there are many opportunities to attend to basic skills, but they are often ignored by vocational teachers.

The curricular topic of vocational education and emerging skills and the changing workplace is illustrated by the work of Halfin and Nelson (1982) and Pratzner and Russell (1984). Citing the rapid rate of technological change and change in work environments, Halfin and Nelson conclude that vocational education must examine multiple approaches to identifying curriculum content if its programs are to be kept modern and up-to-date. The approaches they describe and analyze include advisory committee; creative insight; DACUM process (developing a curriculum); Delphi process; evaluation study; industrial work experience; labor market survey; study, survey, conference; and task analysis. They conclude that the curriculum development procedures for vocational education must be flexible, efficient, and responsive to emerging skills and make use of historical, current, and future-based data.

An example of curricular research that appears future oriented is the work by Pratzner and Russell (1984), which examines the implications of the quality of work life movement for vocational education. Using a review of current literature and research, and interviews and observations at nine firms recognized as leaders in developing and implementing quality of work life activities, they recommend needed changes in the content of vocational education. Quality of work life activities address ways of structuring jobs and organizing work to make the work economically viable and more satisfying. The key point made by Pratzner and Russell is

> to function effectively in high-involvement, participative work settings, workers and managers not only need good basic skills and technical job skills, but they will also increasingly need improved skills and knowledge in group problem solving (e.g., in such areas as interpersonal and group process skills, problem solving and decision making, planning, and communication), and in the organization and management of production (e.g., in such areas as business economics, business operations, statistical quality control, and quality of work life developments. (xi–xii)

The term "sociotechnical literacy" is coined to characterize the purpose of educational programs with the above focus. A vocational education with the goal of developing sociotechnical literacy would be much broader in its content base, appropriate for all students, and involve cooperative learning procedures and experiential learning.

Curricular research in vocational education that addresses the needs of at-risk or special needs groups is reviewed by Copa (1984) and Tindall (1988). Copa's review focuses on vocational education and youth unemployment in the United States. Results of review of an extensive series of studies in youth unemployment suggest that youth unemployment has multiple causes (categorized as demand side, supply side, and transition from school to work). While the most important cause is cited as not enough jobs, the unequal distribution of youth unemployment among different groups of young people (i.e., gender, race, socioeconomic status, geographic area of residence) is related to supply side and transition causes. Copa concludes, "Ready access to sufficient, high-quality vocational education, with needed support services, has potential for impact in this context" (xiv). In order for vocational educators to be most effective in dealing with the issue of youth unemployment, it must be seen as part of a comprehensive portfolio of services categorized as follows: (1) access related (i.e., outreach, recruitment, assessment, guidance), (2) education related (i.e., general education, employability or job-readiness training, skill training), (3) information related (i.e., labor market information, education information), (4) transition related (i.e., age integration, role model development, testing, credentialing and licensing, job placement, support services, community involvement, laws and regulations, geographic relocation, alternatives to work, coordination of services), and (5) work experience related (i.e., work experience, job development). Vocational education was seen as a major provider of the education-related services, and to some extent, other categories of services, with opportunity to alter its capacity, scope, and mix of services.

The work by Tindall (1988) reviews the literature relevant to the issues of career and vocational education's role in retaining at-risk students in school. There are multiple definitions of at-risk students, with typical characteristics including one or more years behind grade level in reading and mathematics achievement; three or more credits behind their age/grade level; chronic truancy; school-age parents; personal and/or family drug and alcohol abuse; physical, sexual, or emotional abuse; and low self-concept and social maturity. Focusing on the area of school retention (dropout prevention), Tindall concludes that a comprehensive program is needed to address the needs of at-risk students and involving the components of (1) administrative support, (2) community support, (3) family support, (4) funding support, and (5) at-risk program development. The component of at-risk program development has the most direct implications for the content of vocational education.

Another topic in the research related to vocational education during the 1980s focuses on the potential of "tracking" students in vocational education with negative consequences for students. The research by Oakes (1983) has been particularly significant as it relates to tracking in general and its implications for vocational education. Using data collected from 25 secondary schools across the country from the study on schooling by Goodlad (1984), she investigated the relationship between student race and ethnicity and differences in the scope and substance of courses taken in vocational education. Her findings were that, in contrasting schools with large nonwhite populations versus those with all-white populations, there was no difference in emphasis on the subject matter of vocational education and that, in schools with large nonwhite populations, there was not a disproportionate number of nonwhite students in vocational education courses. However, she did find that there were marked differences in the kind of vocational education (i.e., curricular content and organizational arrangements) whites and nonwhites experienced within vocational education. The differences led her to conclude that more nonwhites were being directed toward more job-specific training for work with lower-class social and economic futures. One of her recommendations with curricular implications was to question the appropriateness of job-specific training at the high school level.

In contrast to Oakes's interpretation, Plihal, Ernst, and Rehm (1986) studied the practice of equity in terms of access to and treatment in secondary vocational education programs in Minnesota. The authors conclude:

> Vocational education does provide increased opportunity for students. Vocational education apparently serves a variety of student needs, some of which might not be met through other classroom experiences. Vocational education also helps in making winners out of students by laying the foundations for other learning and by increasing their self-esteem. The students themselves generally see vocational education as providing them with opportunities for employment and education. (79)

From yet another perspective concerning tracking, Kantor and Tyack (1982), in an edited book dealing with historical perspectives on vocationalism in American education, conclude that the idea that school should assist in preparing young people for work has been commonly accepted and provides support for vocational programs. They note, "Historians of education . . . generally applauded the rise of vocational schooling, viewing it a democratic movement to liberate the educational system from outmoded practices" (2). On the other hand, "Revisionist historians have argued that vocational education was part of a middle- and upper-class movement for social control and order in a corporate state" (3). Several of the authors in the book edited by Kantor and Tyack argue that attention to increasing vocationalism in schools has not provided the expected results in increased economic opportunity and has diverted attention from basic economic structural problems in this country that cause reproduction of class structure.

The topic of conducting competency or task analyses as a basis for curriculum in vocational education continued during the 1980s, although it was not so pervasive relative to other areas of research. Exemplifying curricular research of this kind is the work of the Vocational Technical Education Consortium of States (V-TECS) (McCage 1986), initiated in 1973. As of 1989, V-TECS had 24 state members and produced 185 catalogs of performance objectives and performance guides addressing more than 500 occupations using very careful and explicit procedures. The catalogs contain lists of duties for each occupation and specific tasks making up each duty (the catalogs of V-TECS now contain over 25,000 tasks). For each task there is a performance guide describing how the task is typically done, the standard for acceptable performance, and the conditions under which standard performance is to occur. Based on these catalogs of objectives and performance, V-TECS has developed curricular guides (45 available at the time of this writing and another 45 under development). The guides formulate the contents of the catalogs into teaching activities, resources, and procedures for evaluation. To assist in curriculum development, this information has recently been computerized into an automated cross-reference occupational system (ACROS). The last component of the V-TEC system, responding to the pressure for accountability for learning, is the development of validated criterion-referenced test item banks to complement the curriculum guides (20 item banks have been developed and others are underway). Test banks are developed under very specific procedures and are field tested. Again, a computerized data base is being used to assist teachers in constructing criterion-referenced tests for specific occupations.

Teaching higher-order thinking skills is another topic of focused curricular research in vocational education. Thomas and Litowitz (1986) proposed an "agenda for inquiry" concerning vocational education and higher-order thinking skills in response to 5 persistent educational problems: (1) inert knowledge, (2) transfer of learning, (3) integration of knowledge, (4) going beyond the givens, and (5) identifying and understanding different types of problems. The agenda for research on higher-order thinking, described as referring to the "more complex levels of intellectual functioning" (Thomas and Litowitz 1986, 6), in relation to vocational education, was described in three parts:

1. Identifying and organizing problems and contexts central in vocational education and their requirements.
2. Describing, documenting, and understanding knowledge, cognitive abilities, and dispositions required by problems and contexts central in vocational education.
3. Identifying, developing, and assessing curricular designs and instructional processes that facilitate development of the knowledge, cognitive abilities, and dispositions required by problems and contexts central in vocational education. (28–29)

The role and development of higher-order thinking skills is addressed from diverse perspectives in an edited report by Thomas (1987), using home economics as a context.

Later work by Thomas, Cooke, and Johnson (1988), undertaking aspects of the proposed agenda, focused on thinking underlying expertise in specific knowledge domains (i.e., electrical troubleshooting, or parenting) and its implications for vocational educatiön. In another study, Thomas and Englund (1989) observe that during practice, an important aspect of vocational education, attention is given to the integration of knowledge and thinking. This concern by vocational education with not simply understanding but application in particular contexts requires strong attention to teaching higher-order thinking skills.

Also relating to higher-order thinking in vocational education, Claus (1988) used a critical science research approach to investigating the curriculum and administration of secondary vocational education in New York using survey and ethnographic techniques. He called for a "renegotiated" vocational education in which (1) problem solving, decision making, and analytical thinking were an explicit part of the subject matter; (2) basic skills are integrated into all vocational courses; and (3) opportunity is provided for group management of entrepreneurial projects. All of these changes are thought to be important in empowering students to understand and manage important aspects of their lives. The need for increased attention to more complex thinking skills and the context of application for vocational education and the rest of education is substantiated by Berryman (1988). The "New Basics" for the workplace identified in joint work supported by the American Society for Training and Development and the U.S. Department of Labor (Carnevale, Gainer and Meltzer 1988) are described as (1) knowing how to learn; (2) reading, writing, computation; (3) listening and oral communication; (4) creative thinking/problem solving; (5) self-esteem/goal setting and motivation/personal and career development; (6) interpersonal skills/negotiation/teamwork; and (7) organizational effectiveness/leadership. The importance of higher-order thinking to these basics is evident.

Another curricular topic selected to be illustrated relates to teaching generalizable skills in vocational education. Generalizable skills are described in various ways by different authors. A fairly comprehensive taxonomy proposed by Nemko (1986) uses these categories: (1) basic skills (i.e., English language, critical thinking, and mathematics), (2) preemployment skills (i.e., lifelong career planning and job acquisition), and (3) work maturity traits (i.e., interpersonal skills and personal management skills). Greenan (1983, 1986, 1987) and Greenan and Winters (1989) conducted a program of research to specifically identify and measure extent of knowledge in several of the basic skill areas (i.e., mathematics, communications, interpersonal). However, Moss (1987) questions an overbalance of attention to generalizable occupational skills (i.e., technical content that is common to a cluster of occupations). He argues that as content is made more generalizable, its occupational functionality may decrease along with its economic advantage to students. An alternative strategy would be to retain strong emphasis on more job-specific skills, but with attention to improving a student's adaptability by focusing on a learning process that facilitates transfer and attitudes that acknowledge the need to continuously change and update occupational skills.

Curricular research involving international perspectives on vocational education also became increasingly frequent during the 1980s. For example, a good description of the place of vocational education in the educational system of member states of the European community was done in 1984 (Angress and Hammelmann). A collection of national perspectives on youth, unemployment, and training (Fiddy 1985) included attention to vocational education for Great Britain, France, Germany, Norway, North America, China, and Fiji. In the 1987 World Yearbook of Education, entitled *Vocational Education*, editors Twining, Nisbet, and Megarry (1987) note, "Vocational education, worldwide, is rich and diverse . . . . The content of vocational education is the 'hidden hand' behind most aspects of everyday life . . . ." (10). After discussing topics addressing the need for definitions (i.e., general versus vocational education, vocational education versus vocational training), contrasts in cultures, immense changes occurring in vocational education, and the knowledge gap between developed and developing countries, the book presents chapters dealing with various aspects of vocational education in Australia, England and Wales, Scotland, Germany, the U.S.S.R., Brazil, East Asia, New Zealand, the Netherlands, South Africa, the United States, Kenya, India, and Japan. In a book series on comparative and international education, the volume relating to vocational education was entitled *Vocationalizing Education: An International Perspective* (Lauglo and Lillis 1988). Vocationalizing is described as changing curriculum in a practical or vocational direction. The editors note that this change is transcending the differing educational systems of rich and poor countries and different political systems. Chapters in the book deal with this change under the headings of goals and justification, context for policy formation, policy implementation, and empirical evaluation studies while dealing with the educational systems of countries such as Britain, France, Germany, the United States, Sierra Leone, Sweden, the U.S.S.R., Brazil, Zimbabwe, Kenya, Tanzania, Colombia, and Trinidad and Tobago.

State-Level Curricular Studies. Several states have made major efforts to revise and reform vocational education to be more effective in secondary schools. These efforts have involved a wide diversity of research approaches, varying from formal, with detailed data collection and analysis, to informal and depending on study groups, conferences, and hearings. Two states will be used to illustrate curriculum renewal projects that are well underway: New York and Minnesota.

The work in New York is described by Kadamus and Daggett (1986), who provided leadership for the effort. Using a group of "futuring committees" for each occupational area in vocational education and an overall administrative committee, the project resulted in recommendations to:

1. Develop a curriculum that would meet the needs of all students and the needs of business and industry.

2. Incorporate a group of core competencies with components relating to personal development, social systems, information skills, resource management, and technology.
3. Integrate the vocational fields into a coordinated program of instruction.

Key features of the curriculum were:

1. A continuous, lifelong vocational development perspective with programming starting in the elementary grades and specific vocational education courses initiated in grades 7 and 8 and required for all students; the coursework that follows in grades 9 through 12 is tuned to the expanding and intensifying vocational development needs of students.
2. Increased integration of vocational and academic coursework and integration among the traditional vocational program areas where appropriate; traditional areas are retained and emphasized in grades 11 through 12; vocational education is seen and designed as a *part* of general education.
3. Major attention to modernization of programs in terms of subject matter, but retaining vocational education's use of experiential methods.
4. Flexibility in curriculum structure (i.e., shorter-length courses, modules within courses) to fit a wide variety of school situations (and student needs).
5. Provision for vocational education in graduation requirements in terms of required courses, sequences of courses, and use of vocational education to meet part of graduation requirements in mathematics, communication, and science. Student "program of study" core to resemble college programs with balanced attention to foundational, core, and specialized study.
6. Development of a very focused assessment process to demonstrate quality and accountability.

After reviewing major technical, economic, demographic, and societal changes affecting work and family life in the United States and their experience with the curriculum reform process in New York, Kadamus and Daggett outlined new directions for secondary vocational education, including:

1. A decrease in emphasis on specialized training;
2. Less expenditure on specialized equipment and more on staff development;
3. Change in emphasis from trade and industry to information and service occupations;
4. New linkages with business and industry; and
5. A closer relationship with general education for a coordinated, integrated curriculum (1986, vii).

In Minnesota, the curriculum reform for secondary vocational education occurred through the work of two major state-level committees. The first effort by the Commissioner's (of Education) Task Force on Education for Employment resulted in a report entitled *Work-Readiness: A New Promise in Minnesota's Education* (1988). A major finding noted in the preface to the report was:

> The unshakable conclusion reached by the Task Force is that work readiness is a critical teaching element that must take root in the pre-K–12 education curriculum as integrated, experienced-based learning. This is a new promise we feel that the Minnesota education system must now make to its young people. (iii)

The recommendations of the Task Force were as follows:

1. The legislative and state board of education mission for pre-K–12 education in Minnesota should be reviewed and updated to include the following: "Graduates from Minnesota's pre-K–12 educational system will be work-ready, in that they will have the appropriate skills, information, experience, and attitudes to pursue productive work lives in a rapidly changing society/economy" (15).
2. Although the pre-K–12 educational system is primarily responsible for achieving the goal of work-ready high school graduates, the task requires sharing, strong support, and involvement from key stakeholders.
3. The State Board of Education will define and evaluate specific state-wide pre-K–12 work-readiness learner outcomes in every curricular area.
4. Every local school district should assure work-readiness learner outcomes through an integrated, experiential pre-K–12 curriculum, which encompasses the relationship between education activities and the real world of students and which promotes valued workplace behaviors. School/business/community partnerships should be encouraged as resources to integrate and increase work-readiness learning.
5. State and local systems should be redesigned to ensure a process that is relevant, readily accessible, and able to improve the ability of administrators, teachers, and support staff to ensure work readiness of students.
6. State and local systems will need to restructure education delivery systems to ensure that an environment is created that guarantees students will be work ready. This would include accountability, decentralization, flexibility, and improved access to work readiness.

As described, work readiness is a responsibility of the entire school curriculum and forms a larger "umbrella" for the functions of vocational education. Vocational education was described as needing to play a leadership role in helping to implement the work-readiness goal in other curricular areas. More directly, work readiness is a primary focus of vocational education.

The second major component of planning for reform in secondary vocational education in Minnesota was the result of a legislatively commissioned study involving general and vocational educators, school administrators, representatives of business, industry and labor, the general public, and teacher educators. The study report, *A Restructured Model for Secondary Vocational Education* (Minnesota Department of Education 1988), contained the following recommendations:

1. The legislature and state board of education must move to an outcome-based design for all of Minnesota's students.
2. The legislature and state board of education must remove barriers that impede achieving these goals. They must support local program designs that address individual student needs and interests and local conditions.
3. State and local leadership must ensure the support necessary to redirect curriculum, develop supportive structures, and design effective evaluation approaches.
4. The legislature, state board, and local districts must implement some critical changes immediately, as well as provide for the active participation of all stakeholders in a long-range restructuring of the total school experience.
5. The legislature must provide the necessary resources to assure implementation of the proposed restructured model.

The principles guiding the reform include (1) integration (including basic and higher-order thinking skills), (2) articulation (nonduplicative transition between secondary and postsecondary programs), (3) modernization (updating and upgrading curriculum and instructional support), (4) equity (equal access and treatment), and (5) redirected curriculum priorities (focus on technical skills, career development, work readiness, preparation for family roles, and technological competence). These recommendations and principles have since been accepted by the Minnesota legislature and state board of education, and implementation is underway.

Summary

As should be apparent from this review of curricular research in vocational education as a whole, there was a considerable increase in attention to vocational education as an integrated instructional system, along with the previously reviewed attention to specific subfields during the 1980s. Curricular research efforts have worked across the fields in areas such as reinforcing basic skills, teaching higher-order thinking, and better serving at-risk youth. Research has shifted to focus on the relationship of vocational education to the rest of the educational system in purposes and curriculum. Major changes, reform, and restructuring of vocational education is being considered, along with the refinement of existing programs in the context of economic, social, and educational change affecting schools, workplaces, and families. Some questions that curricular research in vocational education might consider more seriously in the future are (1) What should be the future structure of vocational education in the context of changing social and economic conditions? (2) How should vocational education be supportive of other general education goals, as well as provide a unique contribution to general education with aims of its own? (3) How can vocational education be made more responsive to the wants and needs of *all* students in K–12 education? (4) What conceptual approaches to curriculum development are most appropriate to vocational education?

IMPLICATIONS FOR FURTHER RESEARCH

Analysis of the historical development and recent research with respect to curriculum in vocational education suggests several research questions that are continuing and/or emerging as significant for future educational research. Some questions persist over time, though responses must change with changing social, economic, and educational context. Other questions are newly emerging as seemingly more important within this changing context.

General versus Specific Education

What content of vocational education should be considered as general, and what is specific education? Some areas of content in vocational education should be part of the common or general education of *all* students for successful participation in our society. Examples of this content include technology education, consumer education, family life education, career education, and economic education. Other areas of the content of vocational education are specific to particular occupational clusters or occupations, and while these areas should be made available to students in an equitable way, they would be selected by students based on their interests and ability to benefit. Examples of this content include secretarial education, sales education, agribusiness education, health occupations education, and transportation occupations education. With this view, vocational education, is both general and specific education, and the traditional categories such as agriculture, business, and marketing have aspects of both types of education. The recent research by Beck (1990a, 1990b, 1990c) provides in-depth insights into the relation between vocational and general education and, particularly, ways that the subject matter of vocational education could be used to strengthen general education. Also, distinctively viewing education for, about, and through work and family responsibilities may have promise in facilitating thinking about curriculum in vocational education. The work of Gardner (1983), initially described in his book *Frames of Mind*, suggest that individuals have multiple intelligences, some of which are directly (and perhaps uniquely) addressed by vocational education in the K–12 curriculum.

Vocational Education and Higher-Order Thinking

What should be done about teaching higher-order thinking skills through vocational education? It is obvious on

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examining the content of vocational education that it does and needs to include teaching higher-order thinking skills such as problem solving, decision making, and critical judgment. These skills extend well beyond technical (how to) skills to the areas of ethical (moral) and aesthetic issue resolution. More research is needed to describe the problems confronted in work and family responsibilities and the higher-order thinking content that needs to be learned in successfully dealing with these problems. Special attention should be given to facilitating the transfer of learning to resolving the same problems over time or in different contexts, as well as to resolving different problems. Sternberg and Wagner's (1986) work on practical intelligence provides a promising way to think about vocational education and higher-order thinking skills in the context of developing competence for the everyday world.

Vocational Education and Basic Skills

What should be done about initially teaching, reinforcing, and enriching basic skills in vocational education? Effective accomplishment of work and family responsibilities requires sound basic skills in communication and computation along with higher-order and more specific skills. The opportunities for strengthening basic skills and ways of doing it effectively by providing a functional context for learning need to be identified for use by vocational educators.

As basic skills are extended to include a working knowledge of science and social studies, the applied aspects of these curricular areas can become an important aspect of vocational education (i.e., technology as the applied aspects of science). The problems and issues of vocational education can, in a similar way, be used to strengthen the effectiveness of subjects not typically labeled as vocational education. In this way, perhaps, the line between vocational and academic education can be productively blurred. The restructuring initiatives now being developed and tested in education represent a major new approach to viewing all of the curriculum of the public schools. The work of Berryman (1988), drawing on the results of investigating the changing nature of work and research in cognitive psychology, suggests significant changes are needed in all of K–12 education regarding the teaching of basic skills with important implications for the role of vocational education.

Integration Within Vocational Subfields

What should be done about the relationships among the content and purposes of the subfields of vocational education (i.e., agriculture, business, home economics)? Can these commonalities and uniquenesses be used to reinforce and strengthen one another? Feasible programs of study for students drawing on the content of several subfields should be developed. Can vocational education be thought of as one fully integrated system? Consideration should be given to more effective ways of structuring and categorizing the content of vocational education. Schemes such as work oriented and family oriented; general, occupational cluster specific, occupation specific, and employer specific; and goods versus services production-related education structures should be investigated as ways to think and talk about vocational education. The interrelation of work and family responsibilities is an increasingly important concern for successful living as both men and women are involved in and try to balance both responsibilities.

Keeping Vocational Education Up to Date

What should be done about keeping the content of vocational education modern and up to date? Technological change, global interdependence, and changing economic and social conditions and values result in the need for the continuous changes in the content of vocational education. How can these changes best be monitored and translated into an effective curriculum for vocational education? Attention needs to be given to strategies for content identification as well as curricular change. Competency studies and local advisory committees have been used in the past as means to ensure up-to-date curriculum modification, and additional mechanisms need to be considered for the future.

Articulation Among Levels of Vocational Education

What should be done about specifying and interrelating the content of vocational education offered at various school levels (i.e., elementary, junior high, high school, postsecondary)? What content is most appropriate for each level, that is, what should be the scope and sequence of vocational education? There may well be areas of needed duplication, and responses may vary depending on the context of particular geographic areas and institutional arrangements. Students need to be able to progress in an orderly fashion, experiencing neither gaps nor unnecessary duplication.

Coordination Among Providers of Vocational Education

What should be done about coordinating the vocational education provided in school with that in other settings, including family, workplace, and community? Consideration needs to be given to other settings for learning the content of vocational education beyond the school. What content is best learned where? What are effective and important partnerships and collaborative relations for providing vocational education? What needs to be done to access what learning has occurred and assure attention to what is missing and essential? It may well be that important dimensions of the content of vocational education are best learned in settings other than school.

Transition from School to Work and Family Life

What should be done about facilitating the transition from school to work and family responsibilities for students? Recognition needs to be given to the fact that the transition to work and family life often occurs before schooling is complete and that the transition may also involve movement from work and family responsibilities *to* school. Attention to successful placement of students as an aspect of the content of vocational education is being increasingly recognized as important to assure program accountability.

Attention to Full Range of Work and Family Responsibilities

What should be done about assuring that vocational education addresses the full range of work and family responsibilities? The range of work responsibilities includes all occupational levels from unskilled to professional, employee to employer, paid to unpaid. The attention to entrepreneurial education and community service education for young people are manifestations of this concern. Similarly, for family responsibilities, the range includes child, parent, grandparent, sibling, and extended family, as well as various manifestations of family (i.e., single, married, divorced, joint residents). How would the content of vocational education need to change if it extended the range of work and family responsibilities given attention? What are the consequences of restricting or extending this range?

Vocational Education's Role as Change Agent

What should be done about vocational education's role in improving the conditions of workplaces and families? Consideration needs to be given to the content of vocational education that would empower students to be active and responsible change agents for making workplaces and families safer and healthier, fairer, more just, and more nurturing and caring settings. Vocational education's stance with respect to existing conditions, that is, whether it acts as a mirror or a change agent, becomes especially clear in this area. Here also is a place for working out vocational education's role beyond the school in community development, both social and economic. The ideas proposed by Wirth (1983) in his book ***Productive Work in Industry and School*** is a stimulating place to start.

Vocational Education and At-Risk Students

What should be done about at-risk students with vocational education? It may well be that the future economic and social program of the United States is dependent at least as much on the effectiveness of education with these students as with those who are very successful in the present educational system. What content of vocational education would be most important and effective in dealing with the needs of at-risk students? What are the consequences of emphasizing this content and these students for other students to be served by vocational education? Who should vocational education be serving in the secondary school? The necessary support services, in addition to vocational education for providing the comprehensive services often needed for at-risk students, must be identified and coordinated. The findings of the William T. Grant Foundation (1988), as described in the report ***The Forgotten Half***, and Schorr and Schorr (1988) in their book ***Within Our Research: Breaking the Cycle of Disadvantage*** provide hope and specific actions that have implications for reaching at-risk students through vocational education.

Vocational Education and Stratification

What should be done about vocational education as a potential means to stratify or track students into less-valued social and economic opportunities? Is vocational education being used in this way? How would its content and organizational arrangement need to change to remedy this situation if it exists? The historical analysis of vocational education made by Tanner and Tanner (1980) and the critical analysis by Oakes (1985) raise useful ideas for investigation.

Mission and Purpose of Vocational Education

What should be the mission and purpose of vocational education in the K–12 school setting? Should it emphasize broad development? general education? specific skills? Should it focus on preparation for short-term goals (i.e., immediate work and family responsibilities) or longer-term goals (i.e., postsecondary education, advancement, and maturity)? Consideration needs to be given to balanced attention to both work and family responsibilities as important aspects of vocational education's mission. The program of research conducted by the Minnesota Research and Development Center for Vocational Education (Copa et al. 1985a, 1985b; Copa, Plihal, and Johnson 1986) provides multiple perspectives on important questions in this regard.

State versus Local Curriculum Content and Guides

What should be done to balance state-wide curriculum specifications and assurances with localized curriculum needs in vocational education? The role of the state education agency in assuring equitable access to high-quality vocational education, in contrast to tailoring curriculum to diverse local school situations, needs further investigation. Where should state responsibility for the curriculum content in vocational education leave off and local responsibility begin? What are the most salient features at each level of responsibility? How is articulation between levels best accomplished in the interests of teachers and students as well as those responsible for funding and accountability? The current movement toward outcome-based education (Spady 1988) provides an opportunity and need to reexamine these issues within new structural arrangements for education.

Interaction of Content and Methods of Vocational Education

What should be done to extend the content of vocational education to recognize its interrelation with and contribution to the methods of vocational education? A dichotomy between instructional content and instructional methods is artificial and often counterproductive in addressing curricular issues. Vocational education's reliance on cooperative and experiential methods may well be a very significant aspect of its content. This interrelationship needs to be clarified and explicitly recognized in research on curriculum in vocational education. The research findings on learning styles (Dunn and Dunn 1978; Keefe 1987) should be examined carefully to identify vocational education's unique contributions to education as a *way* of learning.

Summary

In summary, while the curricular research in the subfields of vocational education and vocational education as a whole is extensive and disciplined, it is in large part (with some notable exceptions) still narrowly focused on technical competence, lacking in an overall conceptual framework, and heavily reliant on a single approach to curriculum development (e.g., instrumental/technical). If this critique is sound, curricular research in vocational education could benefit in important ways from (1) considering a broader and more expansive view of educational excellence (see, for example, Greene [1988], *The Dialectic of Freedom*; Scheffler [1985], *Of Human Potential*; and Shor and Freire [1987], *A Pedagogy for Liberation*); (2) approaching curriculum change and development from several different conceptual and philosophical perspectives (see, for example, McNeil [1977], *Curriculum: A Comprehensive Introduction*; Eisner [1979], *The Educational Imagination*; Schubert [1986], *Curriculum: Perspective, Paradigm, and Possibility*; and Ornstein and Hunkins [1988], *Curriculum: Foundations, Principles, and Issues*); and (3) reconsidering the role of researcher and practitioner in the curriculum research and development process (see, for example, Schön [1983], *The Reflective Practitioner*; and Carr and Kemmis [1986], *Becoming Critical: Education, Knowledge and Action Research*). With vocational education's unique focus toward preparing individuals for effectively dealing with work and family responsibilities in a rapidly changing, multicultural, and global society, the challenge to its curricular research is immense, as are the benefits to its good scholarship and practice.

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